STUDENT INVOLVEMENT: A DESCRIPTIVE ANALYSIS OF ADULTS ENROLLED IN COMMUNITY COLLEGE VOCATIONAL TECHNICAL PROGRAMS

A Dissertation
Presented to
the School of Education
Drake University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by Julie A. Mayrose
July, 1995

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ABSTRACT

The purpose:

The purpose of this study was to provide a descriptive analysis of the educational experiences of adults in community college vocational technical programs (AVTs) according to their levels of student involvement, assessment of progress toward goals, and level of satisfaction with the college environment.

Procedures:

The overall educational experiences of AVTs were compared to other community college student sub-populations. The Community College Student Experiences Questionnaire (CCSEQ) was used as the instrument to collect data. A total of 361 students completed the CCSEQ and constituted the comparison student groups: adult learners (ALs), and traditional age learners (TLs); and within those groups: adults in vocational technical programs (AVTs), traditional age students in vocational technical programs (TVTs), and adults in college transfer programs (ACTs).

Findings:

1) AVT student involvement consists of energy invested in course and writing activities. AVTs do not invest much energy on interaction with other students or faculty. AVTs do not invest as much energy in vocational skills as younger vocational technical students.

2) AVT involvement follows what Astin (1984) describes as a continuum of different levels of involvement in different types of activities.

3) AVT involvement is both quantitative and qualitative. Quantitative involvement was identified by AVTs' reports of gains. AVT satisfaction reflects the qualitative aspect of involvement (Astin, 1984).

4) AVTs are more marginal, less involved students than other adult learners or traditional age learners. College personnel can address these areas of differences and produce services and policies that can lead to AVT increases in involvement, gains, and satisfaction.

Conclusions:

- AVTs' educational involvement largely centers on course and writing activities.
- AVTs experience moderate gains while in college.
- AVTs are only moderately satisfied with their college environment.
- AVTs differ somewhat from other adult learners in community colleges.
- AVTs differ substantially from traditional age learners in community college vocational technical programs.

Recommendations:

1) Seek methods to increase AVT levels of involvement with faculty members and student acquaintances.

2) To increase gain, tie AVT out of class learning opportunities to course completion.

3) To increase involvement, gain, and, satisfaction, design policies that offer credit for on-the-job internships and life experiences and recognition for academic achievement for part-time students.

4) To increase satisfaction, balance the desire to provide services with a respect to not intrude on the AVTs' complex lives and pragmatic natures.

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CHAPTER 1

INTRODUCTION

Background

American community colleges enroll thousands of students each year and offer educational opportunities that result in student transfer to "four year" colleges and universities, entry to highly technical career areas, completion of high school equivalency, and many other accomplished educational goals (Cohen & Brawer, 1986). Community colleges in the United States follow missions that call for service to constituents and community members from highly diverse backgrounds and with wide ranges of abilities, interests, and academic preparation. Adult learners are among the constituents served by community colleges. Moreover, adult learners represent a substantial percentage of community college students, in some cases over 50% of the part-time student enrollment (Graham, 1987).

Adult learners have taken advantage of community college offerings from the early stages of community college development. In fact, community colleges with their open-door and highly accessible curricula have presented educational opportunities to adult learners that they would not necessarily have available otherwise. In recent years, adult learners have enrolled in community colleges in increasing numbers, inflating the average student age from 19 years of age during the 1970s to 28 years of age and older during the late 1980s (Aslanian & Brickell, 1988).

As the number of adult learners increased in higher education, in general, and in community colleges, specifically, researcher interest in adult learners increased. Previous research and theory from traditional age college student studies do not answer questions about adult learner populations (Schlossberg,

Lynch, & Chickering, 1989). Researchers view adult learners as unique in the college setting. Therefore, the accumulation of information on adults in college must provide for diversity within groups of adult students. The study of different groups and sub-populations of adult learners provides further areas for research and examination (Morstain & Smart, 1977).

This study examined a group of adult learners through the lens of student involvement theory. Student involvement theory bridges the differences between traditional college student development theory based on 18-21 year olds and adult development theory that acknowledges growth occurs across a lifetime (Astin, 1984). The study provides information on the educational experiences of AVTs by comparing and contrasting involvement levels, gains, and satisfaction of AVTs to other adults enrolled in a community college as well as to traditional age college students.

Overview of the Problem

A strong relationship exists between student involvement and student achievement in higher education (Friedlander, 1990). The more time students invest in college experiences, the more personal growth, academic achievement, and satisfaction with college increases (Astin, 1984). Student involvement theory places the student in the center of the learning experience and refers to the amount of physical and psychological energy that the student devotes to the academic experience. This involvement takes many forms and degrees or levels of energy and activity. Astin's (1984) involvement theory has five assumptions. They are: (1) Involvement pertains to the "investment of physical and psychological energy in various objects." (Astin, 1984, p. 298) (2) Involvement occurs along a continuum; that is, different students demonstrate different types and levels of involvement in a given object, and the same student demonstrates

different degrees of involvement in different objects at different times. (3) Involvement has quantitative and qualitative characteristics. (4) "The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program. (Astin, 1984, p. 298) (5) Educational policy or practice effectiveness is directly related to the ability of that policy or practice to increase student involvement (Astin, 1984).

Astin (1984) suggests that student involvement is a crucial factor in a student's ultimate success from the effects of college. Student success is generally defined as graduation from college and an overall appreciation for the college experience (Pacasrella & Terenzini, 1991).

The majority of student involvement research examines residential students enrolled at four-year colleges and universities. Only recently have studies been completed on student involvement at community colleges. These research findings support that the greater the level of student involvement, the greater the degree of progress students felt they had made toward their educational goals (Friedlander & MacDougall, 1992). Researchers in community college student involvement have examined the overall student populations at community colleges as well as student groups, such as transfer program students and vocational technical program students (Lehman, personal communication, April 24, 1993).

The problem for community colleges and their students is to determine what student involvement means to student populations that are nontraditional, older, often working full-time and enrolled in classes part-time, with numerous other pulls on their time, values, and concentration (Friedlander, 1990; Friedlander & MacDougall, 1992). Community college personnel and students benefit from knowing how students achieve satisfaction with their educational

experiences without expending large amounts of time (Douzenis & Murrell, 1992). This study sought to answer questions about student involvement within a specific student population--adult learners in community college vocational technical programs, referred to in this document as AVTs.

AVTs enroll in community college programs for highly pragmatic reasons, for example, to prepare for career changes, to update skills for current profession, or to prepare for career advancement opportunities within their current job setting. However, along with a pragmatic approach, AVTs also seek "personal growth" from their college experiences (Graham, 1987, p. 42). AVTs may or may not have previously attended college but they have expectations and demands that their college experiences be more than marking time and accumulating credits (Krager, Wrenn, & Hirt, 1990).

Adults enroll in community college vocational technical programs each year for many purposes (Hale & Wattenbarger, 1990). As with other adult learners, these students come to the colleges from complex environments, with high demands on their time and resources. They need to maintain a quality educational experience at the college while continuing to meet the demands of the other aspects of their lives (Hale & Wattenbarger, 1990). Research supports that an institution can provide quality teaching and learning opportunities that increase student involvement and success to all types of community college learners (Kuh, Schuh, & Whitt, 1991).

The community college environment can produce numerous quality physical and psychological involvement opportunities for adults in vocational technical programs. Community college personnel can assure delivery of appropriate involvement opportunities only after knowing which opportunities best meet the needs of diverse student groups (Astin, 1985). Community college

student involvement research provides information that community college administrators can direct to program delivery (Friedlander & MacDougall, 1992).

Astin (1984) describes student time as a college's finite but most important resource. How a community college insures an educational environment that allows for AVT student involvement, is satisfying to AVTs, and leads to AVT personal educational gains while taking into account the limited time available to AVTs for college experiences is a topic worthy of exploration. A further understanding of student involvement within a community college setting enables community college faculty members and student development personnel to better assess student needs and program delivery.

Adults in vocational technical programs represent the largest growing source of students for community colleges in the 1990s (Terry, 1985). These students have been identified as a different category of adult learner, with different needs for programs and services (Two Year College Development Center, 1988). Research does not indicate if these different needs stem from differences in involvement and the subsequent gains and satisfaction that result from involvement (Astin, 1984).

Research on community college student involvement falls short of documenting the educational experiences of AVTs. However, student involvement theory is an excellent framework to describe what happens to AVTs while they are in school. By using student involvement as the framework to this study, the AVT educational experiences were best understood. In addition, by comparing and contrasting AVTs to other students within the context of student involvement theory, the differences and similarities were clearly delineated.

Theoretical Formulation

This study was based on a conceptual framework grounded in research on the effects of college on students as described by Astin's theory of student involvement; Pace's construct, "quality of effort," as a mean to describe and measure college student experiences; and Schlossberg, Lynch, & Chickering's adult learner student development transition model.

Astin's theory of student involvement purports that the more involvement students have in college experiences, then, the more students experience personal growth, academic achievement, and satisfaction with the college. Astin describes involvement as both physical and psychological activities (Astin, 1984).

Pace provides the means to describe and measure college student educational experience through the Community College Student Experience Questionnaire (CCSEQ). Pace uses basic student involvement theory to produce constructs that measure student involvement, student progress toward educational goals, and student satisfaction with the college environment. The scale scores students produce within the different constructs enabled the researcher to understand educational experiences of different categories of community college students.

Schlossberg et al.'s (1989) model of adult transition supported the perspective of this study. Research indicates that adult learners are different from traditional age college students and that these differences go beyond the age differences. Schlossberg, Lynch, & Chickering describe the adult learner experience through a description of the transitions these learners experienced that brought them to point of enrolling in higher education. Schlossberg, Lynch, & Chickering recognize the complicated lives and events that surround adult learners. According to these authors, college officials and researchers need to

acknowledge and take into account the various transition factors that affect adult learners.

Purpose

The purpose of this study was to provide a descriptive analysis of the educational experiences of adults in enrolled in community college vocational technical programs according to their levels of student involvement, assessments of progress toward educational goals, and level of satisfaction with the college environment. This was accomplished by examining the overall educational experiences of AVTs compared to other community college student sub-population's educational experiences.

Methodology

Three areas were examined to document educational experiences overall to produce a specific, quantified analysis of the college experience of AVTs; adult learners, in general, (ALs); traditional age learners, in general, (TLs); adults in college transfer programs (ACTs), and traditional age students in vocational technical programs (TVTs). The areas examined were student involvement, assessment of progress toward achieving goals, and satisfaction with college environment.

Student involvement was measured according to the students' quality of effort scale on involvement in the classroom, contacts with faculty and other students, and out-of-class activities. Progress toward goals was measured by student self-assessment of personal and social development while at the college, along with intellectual and cognitive skill increases. College environment was measured according to the extent students saw the college emphasizing certain

aspects of learning; socialization; and relationships among students, faculty, and administrators.

This study used the Community College Student Experiences Questionnaire (CCSEQ), published by UCLA Center for the Study of Evaluation, to gather data on background information, including reasons for enrollment; use of the facilities of the college; impressions of the college; and self-estimated progress toward educational goals.

Statistical analyses of the CCSEQ scale scores on student involvement, satisfaction with the college environment, and estimate of progress toward goals of the student groups, ALs, TLs, AVTs, ACTs, and TVTs, enabled the researcher to look for differences between the student groups.

Research Questions

The following research questions guided this study:

Student Involvement

Are there differences in levels of student involvement between ALs and TLs?

Are there differences in levels of student involvement between AVTs and ACTs?

Are there differences in levels of student involvement between AVTs and TVTs?

Assessment of Progress toward Goals

Are there differences in assessment of progress toward educational goals between ALs and TLs?

Are there differences in assessment of progress toward educational goals between AVTs and ACTs?

Are there differences in assessment of progress toward educational goals between AVTs and TVTs?

Satisfaction with College Environment

Is there a difference in level of satisfaction with college environment between ALs and TLs?

Is there a difference in level of satisfaction with college environment between AVTs and ACTs?

Is there a difference in level of satisfaction with college environment between AVTs and TVTs?

This study examined adult learners and traditional age learners enrolled in community college occupational career and college transfer programs. The study compared, through statistical analyses, the similarities and differences in educational experiences of adult learners, traditional age learners, AVTs, ACTs, and TVTs to provide a comprehensive, statistically supported descriptive analysis of the college experience of adult learners in community college vocational technical programs.

The sample population for this study was those adult learners and traditional age learners enrolled at the Ankeny campus of Des Moines Area Community College during the Fall, 1993, term. Both full-time and part-time students were included in this study. The sample population was drawn from students enrolled in DMACC occupational career and college transfer programs. Student participation was voluntary and no identifiable information was gathered during this study.

Need for the Study

Student involvement theory is based on the premise that institutions should use the theory when making policy and program decisions (Astin, 1984). There is a lack of research on community college student involvement. While research done at four-year schools can be used for study at community colleges there is a need for research specific to the community college settings.

Astin (1984) suggests researchers can learn more about student involvement by studying particular student characteristics to see if these characteristics relate to different forms of involvement. Further, Astin suggests that research can determine if different forms of involvement produce different outcomes for "different types of students." (p. 306)

In order for community college leaders to make more comprehensive decisions about program offerings, use of services, and response to the environment, more needs to be learned about student involvement at community colleges and what student involvement means to different groups of students within community colleges.

In particular, there is a reason to study adult learners enrolled in community colleges in order to learn more about the educational experience of this student population. AVTs represent a growing student population and a student population dedicated to program completion in order to meet educational goals.

This study sought to contribute to the knowledge base on educational experiences of community college students, adult and traditional age learners in higher education, community college vocational technical students, and the descriptive analysis of the college experience of a specific student population.

Limitations

This study is limited by lack of generalizability due to the sample size and research bias in interpreting the results of the data.

The study is further limited by the high number of AVTs enrolled in health related programs. It is uncertain as to the effect enrollment in these programs has on the overall college experience. It should be noted, however, that the sample for this study was drawn from students enrolled in a broad cross-section of community college classes. Only one class, Biol 120, was identified as geared to students preparing for entry to a health related program. Apparently students enrolled in this class, as well as others, identify themselves as being in health related programs even if they have not been officially accepted into the program. Health related programs make up a large percentage of community college vocational technical programs and therefore, it is not overly surprising that such a large percentage of participants in this study identified themselves as in health related majors.

It is unclear if the CCSEQ, the instrument used in this study, adequately measures educational experiences of adult learners. None of the supporting literature on the CCSEQ limits its uses to traditional aged community college students. While the CCSEQ measures specific educational experiences, it is unclear if adult learners involve themselves in the same types of activities as traditional age learners. Adult learners may be found to have levels of activities in areas not measured by the CCSEQ.

Conclusions from this study must be cautiously generalized to other community college settings. Des Moines Area Community College consists of five campuses and numerous courses and programs. While the students in this sample represent students enrolled in programs at the Ankeny campus, it is uncertain as to how the results generalize to other DMACC campuses and

beyond that, to other Iowa community colleges and community colleges throughout the United States.

Definitions

Adult learner --(ALs) College student older than 23, enrolled full-time or part-time

Adult college transfer students--(ACTs) For the purposes of this study, an adult college transfer student is defines as at least 23 years old, enrolled in a community college transfer or general education A.A. or A.S. degree program.

Adult vocational technical students--(AVTs) For the purposes of this study, an adult vocational technical student is defined as at least 23 years old, enrolled in a community college vocational technical associate degree program.

Affect--For the purposes of this study, affect is the verb used to describe how college influences students

Associates in Arts Degree--A.A.

Associates in Applied Science Degree --A.A.S.

Associates in Science Degree--A.S.

College environment--Emphasis a college places on different aspects of student development, academic development, expressive or creative development, and vocational and occupational development (Pace, 1988).

DMACC--Des Moines Area Community College

Effect--For the purposes of this study, effect is used as a noun to describe outcomes from college

Estimate of gains--The extent to which students believe they are achieving important objectives of higher education (Pace, 1984). This term is used

interchangeably with student assessment of progress toward educational goals

Quality of effort--Student and college interaction where learning and other outcomes of college is a function of what the college offers and what the student does with those offerings (Pace, 1982).

Student involvement --The quality and quantity of physical and psychological energy a student devotes to an educational experience (Astin, 1984).

Traditional age community college vocational technical student (TVTs)--For the purpose of this study, a traditional age community college vocational technical student is defined as between the ages of 17 and 23, enrolled in a community college vocational technical associate degree program.

Traditional age learners (TLs)--For the purposes of this study, a traditional age student learner is defined as a college student between the ages of 17 and 23 enrolled for credit at a community college either full-time or part-time.

CHAPTER 2

REVIEW OF THE LITERATURE

Overview of the Chapter

The purpose of this study was to provide a descriptive analysis of the AVTs' educational experience according to their student involvement, progress toward educational goals, and their satisfaction with the college environment. The review of the literature sets the stage for this study by describing the theoretical bases for the study and by discussing research and findings related to the purpose of the study. The review begins with an explanation of the theoretical framework then discusses research findings and contributions within the areas of involving colleges and students, adult learners in community colleges, and adult learners in vocational technical community college programs. The last part of the chapter includes findings and reports on the instrument used in this study, the CCSEQ.

Theoretical Base

This study was based on a conceptual framework grounded in research on the effects of college on students as described by Astin's theory of student involvement; Pace's construct, "quality of effort" as a means to describe college student experiences; and Schlossberg, Lynch, and Chickering's adult learner student development transition process model as a perspective for the study of adult learners in higher education.

Affect of college on students

Feldman and Newcomb published The Impact of College on Students in 1969. The authors reviewed and synthesized college student and learning research from 1500 sources. Feldman and Newcomb were the first to study,

organize, and produce a comprehensive document on research on higher education effects (Pascarella & Terenzini, 1991). An outcome from Impact was the recognition of the lack of theories that explain or describe what happens to students in college and what role college plays in student change (Pascarella & Terenzini, 1991). Since the publication of Impact numerous theories and models have arisen that describe student growth and development. For example, Chickering, Perry, and Kohlberg provide the grounding for many studies and explanations of the outcomes from college, what happens to students in college, and the benefits of college (Pascarella & Terenzini, 1991). There is consensus as to what researchers mean and look for when discussing change and development that occurs in and from college. These can be summarized as follows:

> What evidence is there that individuals change during the time in which they are attending college?
>
> What evidence is there that change or development during college is the result of college attendance?
>
> What evidence is there that different kinds of postsecondary institutions have a differential influence on student change or development during college?
>
> What evidence exists on effects of different experiences within the same institution?
>
> What evidence is there that the collegiate experience produces conditional, as opposed to general, affects on student change or development?
>
> What are the long-term effects of college? (Pascarella & Terenzini, 1991, pp. 7-8)

Some of the changes explored can be seen during the time students are in college, others require longitudinal examination. In all cases, it is difficult to single out and attribute change and development only to the college. However, studying the affects of college enables educators to better explain the collegiate process, design programs that fit needs, and assess how well colleges do what they claim to be doing (Pascarella & Terenzini, 1991).

Astin's Theory of Student Involvement

Student Involvement, as described and defined by Astin, provides a context to explain the process of college student development. To define involvement, Astin uses the Freudian based idea of "cathexis" (Astin, 1984, p 298) defined as the investment of psychological energy, combined with the learning theory concept of time-on-task, defined as the amount of time any individual actually spends in overt learning (Pascarella & Terenzini, 1991). Student involvement theory places the student in an active role in the change process at college rather than as only a recipient of knowledge and information (Astin, 1985).

Student involvement theory developed from Astin's study of college student retention research and literature. According to Astin, student learn best when they are involved and are more likely to continue in and graduate from college when there are high levels of physical or psychological involvement (Upcraft & Moore, 1990).

Astin first discusses the effect of college on students in his book, Four Critical Years. Four Critical Years (1977) presents the format of how college affects students and in what ways different colleges affect students. All forms of student involvement are associated with greater than average changes in entering student characteristics. Students enter college with certain

characteristic and beliefs and after college they have different characteristics and beliefs. The level and types of student changes that occur depend on the type of college attended and the level of involvement the student had at the college. The most significant factor that determines the effect of the college on the student is if the college is residential and the student lives on campus. The institutional environment has an important role to play in providing students with different and varied interactions with other students, faculty members, and overall ideas and notions (Astin, 1977). Astin and others cite the ability of an institution to measure its environment and involvement opportunities (Delworth, Hanson.& Associates, 1990). By measuring its student involvement levels afforded by the campus environment, a college can better serve its students in their development and attainment of learning goals.

Each year, the Astin group surveys entering college freshmen on characteristics, beliefs, and reasons for enrolling in college. This cross-sectional study gathers information from all types of colleges and universities in the United States. The longitudinal study then follows up after four years asking the students the same questions as they were asked as freshmen (Astin, 1992).

Involvement

Student involvement as a measurable concept within higher education is relatively new. The newness of the concept leads to the ambiguous nature of it. Baird (1989) describes the period when a concept or idea catches the attention of researchers as a period when the concept's scopes and parameters must be examined before exact definitions are developed. Both Astin (1984) and Pace (1982) define involvement behaviorally and assert that involvement can be discovered in what students do and the amount of effort students expend in activities.

Involving Colleges (1991) concludes that involvement can be seen at many types of colleges and universities and most students take advantage of increased involvement activities when both the schools and the students allot time, energy, and means to such activities. Kuh, et al. (1991) studied only four-year schools but recommend strongly that community colleges examine involvement opportunities for out-of-class learning experiences for their students. Further, Kuh, Schuh, & Whitt (1991) question: [a]re students with certain characteristics and experiences more likely to participate in some activities and not others ?" (p. 366) Is it possible that community colleges can become more "involving" by identifying what involvement looks like for their students? Are some students involved, even though their campus is not consciously "involving?"

Students that attend colleges identified as "involving" have similarities in spite of diversities such as age, ability, and ethnicity. These similar characteristics are:

1. Student learning in and out of class is seamless; that is, students do not partition what they learn into experiences from the classroom, laboratory, residence, and other activities. Rather these events and activities blend together in students' minds.
2. Students know how the institution works (or think they do); that is, they know how to use the college's resources to achieve their purposes.
3. In general, most students take seriously the institution's expectations that students will be responsible for their own lives and their own learning.
4. Students may or may not have close, personal relationships with faculty or staff members. Those who have such relationships usually initiated the contact.

5. Students learn as much from peers and others outside of class as they do from classes.

6. Most student subcultures promote student involvement in activities that complement the institution's educational purposes. (Kuh, Schuh, & Whitt, 1991, pp. 183-84)

These characteristics are supported by the authors' study of 14 colleges and universities that educational specialist identified as "involving." While this taxonomy is not supported quantitatively, it is possible to use these characteristics in the study of students at schools outside the Kuh, Schuh, Whitt (1991) study.

Community colleges can be studied in light of the factors that contribute to an involving college setting. Kuh, Schuh, & Whitt (1991) describe those factors and conditions as: mission and philosophy, campus culture, campus environment, institutional policies and practices, and the role of the administrators, faculty, and students in promoting students' out-of-class learning and personal development.

Pace's "Quality of Effort" Constructs

The literature on college effects contains two basic themes regarding the effects of college. Theme one is that the amount and quality of student-college relationships lead to specific effects. Theme two is that the time and effort students give to certain activities results in specific college effects (Arnold, Kuh, Vesper, & Schuh, 1991). Pascarella and Terenzini (1991) present support for the effect of student total level and amount of campus interaction to be a strong determiner of the overall and lasting effect of college. Pace (1982) presents the quality of effort constructs as empirical confirmation of how student involvement leads to specific effects and overall academic success.

Pace first designed his quality of effort scale in 1980. Pace grounds his work in the assumption that what students get out of college is dependent on the "extent and quality of effort" (p. 99) students put into the college experience along with the overall college environment. The student quality of effort interacts with the college offerings. "Thus, extent of subject matter learning, as well as other outcomes of college, is a function of what the institution offers and what the student does with those offerings," (Pascarella & Terenzini, 1991, p.99).

Pace's quality of effort constructs estimate a student's use of a school's facilities, programs, offerings, etc. Each construct is measured by a scale that indicates the level of involvement the student has within each construct. Levels of involvement range from never to very often. The constructs fall into three categories, 1) academic and intellectual experiences; 2) personal and interpersonal experiences; and 3) group facilities and opportunities (Pascarella & Terenzini, 1991).

Pace's findings support a correlation between levels of involvement and student knowledge acquisition (estimates of gains) and student quality of effort within the constructs. Pace refers to student knowledge acquisition as "estimate of gains." The estimates of gain are measured by a general education scale and an academic and intellectual outcome scale (Pace, 1984). Other researchers support Pace's findings and present findings that correlate specific activities to specific estimates of gain (Pascarella & Terenzini, 1991).

Pace defines his quality of effort constructs as "systematic, structured, and reliable inventory of the amount, scope, and quality of effort students put into capitalizing on the college experience," (Pace, 1982, p. 5). There is a direct and positive correlation between student quality of effort and overall academic achievement. Pace designed the College Student Experiences Questionnaire

(CSEQ) to empirically support the interaction of student quality of effort, the college environment, and student outcomes.

Pace writes that in higher education, there is little empirical evidence of how students spend their time and how time spent leads to or detracts from academic achievement or success. Through evidence of student quality of effort, it is possible for an institution to predict academic outcomes for individual and groups of students. A college can determine student readiness for involvement and knowledge students have of those activities and events that can lead to higher levels of learning and development (Pace, 1984).

Student Development Theory

The majority of student development theory addresses issues that surround 18 to 22 year old college students (Pascarella & Terenzini, 1991). In recent years student development specialist have examined growth and development issues in an attempt to define development areas that the traditional theory does not approach (Upcraft & Moore, 1990). Student development theorist have provided constructs on the college experience for persons of color, development and sexual orientation, women, and adult learners.

In the area of adult learners, Chickering presents his original student development theory adapted to adult learners to better account for the complex lives of adult learners, the different degrees of expectations adults have for the college setting, and other characteristic that distinguish adult learners from traditional age college students (Krager, et al., 1990). Adult students approach college with skepticism along with strong senses of purpose. In particular, for an adult student to continue in college and gain from the college experience, they have to feel they are distinct and important to the school and that the educational experience makes a difference.

> Schlossberg, Lynch, and Chickering (1989) describe student success as dependent upon the amount or level students see themselves as mattering. Mattering refers to the beliefs people have, whether right or wrong, that they matter to someone else, that they are the object of someone else's attention, and -that others care about them and appreciate them. In the collegiate environment, students must believe that they matter and that others (peers, faculty, staff, and family) care about them. They must feel that they belong if they are to succeed (Upcraft & Moore, 1990, p. 51).

Mattering as defined by Schlossberg, Lynch, and Chickering, is especially essential to adult learners (Delworth & Hanson, 1990). Schlossberg uses the mattering construct to underpin her adults in transition developmental model. Schlossberg describes adult transition as growing from many experiences rather than from one trigger event or a predictable occurrence (Upcraft & Moore, 1990). Because adult transition stems from many different events, it is less useful to know an adult's age than to know an adult's experience when attempting to understand reasons behind a decision to enroll in college (Schlossberg, 1984).

According to Schlossberg (1984), there are predictable and unexpected transitions and nonevents that happen during an adult lifetime . An example of the predictable transition is marriage and an example of the unpredictable is a serious illness although nonpredictable transitions are not necessarily unpleasant. A nonevent is an occurrence that was expected but that did not occur, for example, not earning a promotion after working toward it for several years. In other words, adults come to education with complex lives, motivations, and goals.

According to Schlossberg, Lynch, and Chickering (1989), educators can work more effectively with adults by studying them within four contextual areas: situation, self, supports, and strategies.

> Situation--where a person is in the transition, moving in, moving through, moving on; is the transition positive or negative; is the transition voluntary or imposed?
>
> Self--individuals strengths for coping; is individual able to see options; does individual have previous experiences that help the transition?
>
> Supports--does individual have financial means during transition, are finances an issues in transition; are there others to emotional sustain the individual during transition?
>
> Strategies--what are the available methods to use during the transition; how can multiple strategies be used to impact the transition?
>
> (Schlossberg, 1984)

Schlossberg emphasizes the need for student affairs professionals and other educators to provide individual assessment for adult learners because of the complex nature of the adult learners' experiences and environments (Upcraft & Moore, 1990). The model is used here as a means for describing the adult learner experience and as a grounding for the study of adult learners in community colleges. The transition model coupled with the Schlossberg, Lynch, and Chickering (1989) concept of recycling and revisiting provide lenses for viewing the adult learner from a perspective that better explains and defines the adult learner experience than traditional college student development theory or adult development theory by itself.

Student Involvement Research

Research on Astin's Theory of Involvement

Astin's student involvement theory presents student development from a student-centered perspective. Astin views students as holding central roles in their growth from their college experiences. Students determine the range and depth of their own growth. The colleges provide resources or environment and student development occurs according to how students involve themselves with institution resources and the environment (Astin, 1985).

Astin and other researchers have shown how college affects students. Researchers have shown through numerous studies that some colleges affect students differently than others also known as between college affects (Pascarella & Terenzini, 1991). However, research also supports that within college affects exist as well and that any student in any type of college or university can experience within college affects and that the institutions can purposely provide programming, opportunities, or an environment that increases the educational experience affect on students.

Much of the research using student involvement seeks to demonstrate how different types of involvement influence or help different groups of students. Most of the research on student involvement focuses on four-year institutions. However, recent work by Murrel (personal communication, April, 1993), Friedlander (1990), and Lehman (1992) examines student involvement at community colleges.

Researchers, particularly those researchers involved in student affairs issues, have studied college student membership in organizations, extracurricular activities, Greek organizations, etc. for many years. This research is extensive and useful, however, this review is confined to those studies grounded in Astin's theory of student involvement. Subsequently the research reported dates from 1985 to the present.

Astin discusses student involvement within the context of college environments (Astin, 1984). The college environment most influential to student involvement is the residential school and the students living in residence halls. For the residential college and the student living in the residence halls, certain types of involvement result in greater gains for students. Students involved in honors programs, student government, athletics, faculty interactions, and high academic rigor are most likely to persist to graduation and report beneficial effects of college. However, as Astin states, "Perhaps the most important general conclusion I reached from this elaborate analysis was that nearly all forms of student involvement are associated with greater that average changes in entering freshmen characteristics " (Astin, 1984, p. 303).

VonDestinon (1988) used Astin's theory of student involvement in combination with Tinto's model of student integration to study Chicano students in Arizona universities who persisted to graduation. Von Destinon explains that linking Astin to Tinto enables researchers to study integration of students into the college environment without regard to the nature of the involvement. "In his theory of involvement, Astin recognizes the sociological influence [of a college] by assigning the institutional environment a critical role in that it presents students with experiences, but the extent to which the student becomes involved in the experiences determines development." (Von Destinon, 1988, p. 4).

Research on commuter students at four year colleges provides information that is the most easily transferred to community college settings. In particular, research on commuter student involvement supports the concept that these students do want to be involved in their educational institution as much as the students residing on campuses want to be involved (Likens, 1989; Wilmes & Quade, 1987). Commuter students at four year schools are diverse. Most are employed, married, have children, and manage a complex personal and

professional life along with their roles as students (Rhatigan, 1986). Commuter students often carry the myth of being uninvolved in outside of class activities or non-course related activities. However, studies have shown that this lack of involvement is accurate only at those institutions that provide activities or interactions during times the commuter students do not have available time. When opportunities are provided at times open to commuter students, then these students often do participate (Likens, 1989; Rhatigan, 1986). Likens (1991) reports that a survey of commuter students indicates that using a tradition-bound, residential student paradigm for describing student involvement does not provide a true picture of the college experience for commuter students. When commuter students are asked how involved they feel in their school and thereby enable the student to self define involvement, then commuter students report high levels of feeling involved in their college and their college experiences.

Arnold, Kuh, Vesper, and Schuh (1991) presented findings from their involvement study of students enrolled at six metropolitan universities located across the United States. The researchers sought to determine "what factors contribute to the learning and personal development of traditional and new majority students at metropolitan institutions?" (p. 5) The purpose of the study was "to examine how student involvement in campus activities, student perceptions of their college environment, and student characteristics work together to influence student learning at metropolitan institutions." (p. 5) The student characteristics included for study were student age and enrollment status. The characteristics were divided according to age 22 and younger, age 28 and older, full-time, part-time. Study conclusions were (1) that learning gains of both traditional and "new majority students" are affected by the college environment and involvement; (2) Age and enrollment status influence learning gains; (3) the interaction of age and enrollment status with each other and with

involvement and with environment affect both learning gains and personal development. One of the recommendations from the study was to research the interaction of reason for enrollment with environment and involvement to determine the significance of enrollment motivation to learning gains (Kuh & Vester, 1991).

Community College Student Involvement

Research on community college student involvement is fairly recent. Reports on student involvement studies come from large urban campuses (Ackerman, 1990); multi-campus, regional community colleges (Knight, 1992); and from state-wide, multi-site studies (Douzenis & Murrell, 1992). Each of the more recent studies of community college student involvement focuses on multiple group comparisons, for example, transfer students to vocational technical students (Knight, 1992; Ackerman, 1990) and minority to non-minority students (Douzenis & Murrell, 1992). Knight (1992) notes the difficulty in comparisons of groups of students according to transfer and non-transfer because many of the students in vocational technical programs declared their intentions to transfer to four-year schools. This resulted in lack of clear comparisons between what, on the surface, should be two separate and distinct groups of students. The Kent State study (Knight, 1992) did present comparisons of involvement according to student age and gender. This study did not include groupings of students according to reason for enrollment beyond the transfer, non-transfer categories.

The Santa Monica College (SMC) study (Ackerman, 1990) focused on those students enrolled preparing for transfer to four-year schools. The study used transfer students enrolled in nine other California community colleges as the comparison group. The study results indicate that the SMC students were highly

involved in their educational experiences. The majority of students attended full-time and during the day. The students in the study devoted, on average 8 hours a week on the campus outside of class. The students in the study represented traditional college students, from 18 to 22. This study compared community college students to other community college students and both groups were comparable in age, race, and reasons for enrollment, i.e. preparing to transfer to four-year colleges or universities (Ackerman, 1990).

Douzenis and Murrell (1992) studied community college students enrolled in seven Tennessee community colleges located within a specific radius of Memphis, TN. The purpose of the study was to determine student involvement levels of Caucasian students compared to African-American students. In addition, each community college that participated included a research question specific to their campus. The study did not indicate a statistically significant difference between the groups of students but did reveal some commonalties of involvement across the seven colleges. For example, the students at all seven colleges appeared to highly involved in writing efforts and not involved in the use of the school libraries. Douzenis and Murrell encourage the application of the involvement study in college strategic planning, program development, and evaluation (Douzenis & Murrell, 1992). This study present extensive information on community college students in general and according to race.

Adults in Higher Education

There are a number of terms used in the literature to describe adults in college. Some examples of terms are nontraditional students (Krager et al., 1990); older adult students, adult students (Kasworm, 1980) and adult undergraduates (Sewall, 1984). Kuh and Vesper (1991) quote Ehlich's definition of "new majority" (p. 1) as a reference, in part, to adults in college. "New majority

students are made up of two groups: (a) those who are older than 25, live off campus, work more than 20 hours per week, have families, and attend college part-time, and (b) traditional-age students of color who live on or off campus." (p.1) For the purposes of this review and throughout this study, I use the term adult learner from Krager, et al., (1990) defined as "students twenty-three years of age or older, enrolled in degree or certificate programs offered by colleges and universities, or completing coursework leading to admission to such programs (p. 38).

The literature is replete on studies discussing adult learners in higher education. Studies and reports on adult learners can be categorized according to demographics and trends, characteristics, and theories (Krager, et al., 1990). An overall consensus from research on adult learners is that these students represent a large share of college enrollments, there are enough adult learners enrolled in mainstream college programs to make the term "nontraditional" no longer relevant, and adult learners represent a diverse and complicated group of students.

The focus of this review of the literature has been studies and research on adult learners in community colleges with a specific emphasis on adult learners in community college vocational technical programs. However, before discussing adult learners in community colleges, it is useful to discuss some adult learner research areas that cross institution lines. Two research areas that provide substantial detail on adult learners are reasons or motivation for enrollment and strategies or services that support adult learners.

Reasons or motivation for enrollment

In 1977, Morstain and Smart produced a motivational typology of adult learners. According to Morstain and Smart, it is necessary for colleges and universities to look at adult learners in terms of why they enroll rather than as an age-related, homogeneous group. Morstain and Smart (1977) present six groupings in which most adult learners can be classified. By concentrating on the groupings by motivation rather than on the fact that adult learners are not traditional college -age students, then higher education institutions can better understand these students and respond to the students based on an understanding of them. While not all research on adult learner enrollment uses the Morstain and Smart typology, studies on adult learners invariably concentrate on reasons for enrollment as distinguishing factors overall or within groups such as women or commuters (Rountree & Lambert, 1992; Champagne & Petitpas, 1988; Sewall, 1984; Bagnall, 1989). A predominant reason or motivation for adult learners enrolling in higher education is to prepare for career change or job preparation (Aslanian & Brickell, 1988). Morstain and Smart (1977) categorize this as "Professional Advancement" (p. 669) By studying the reasons or motivation for adult student enrollment, researchers can provide better understanding of these students and their educational needs (Krager, et al., 1990).

Strategies/Services that Support Adult Learners

Articles, reports, and monographs contain many points of view on strategies and services for adult learners. It is possible to track the increase in adult student enrollment into higher education by studying various writings across time. For example, much of what was written about adult learners in the early 80s was devoted to anticipated increases in enrollment by adults (Krager, et al., 1990) These largely demographic studies reported the declining numbers of high

school graduates and predicted a shift in enrollment patterns from full-time to part-time and from residential to commuter attendance.

During the 80s, researchers looked at adult learners in contrast to what was termed, "traditional age" college students. Differences between the students were readily identified and specific and special services were recommended to recruit and retain the adult learner (Kasworm, 1980; Kuh & Sturgis, 1980; Richter & Witten, 1984) Demographic reports in the 80s supported the projections of the late 70s and early 80s. Adult learners were enrolling in large numbers and primarily as part-time and commuter students (Terrell, 1990).

During the late 80s to the present, the literature on adult learners often presents results of need assessments completed at colleges and universities (Terrell, 1990; Puryear, 1988). Along with needs assessments, researchers reported on recommended programs, services, etc. tied to specific growth and development models (Champagne & Petitpas, 1988; Schlossberg, Lynch, & Chickering, 1989).

Adults in Community Colleges

Reports on research on adult learners in community colleges is largely descriptive and demographic. This student population has been growing since the early 80s (Cohen & Brawer, 1986). For the most part, discussion around adult learners in grounded in human growth and development theory rather than in college student development theory (Pascarella & Terenzini, 1991). The use of Astin's theory of student involvement to explain change from college can bridge the different perspectives of human development and student development (Astin, 1984).

The adult learner population is diverse and growing. Recent studies provide comprehensive information on descriptive and demographic features of these students.

In the United States in 1988, 4.3 percent of adults age 23 and older were enrolled in college credit study. This represents approximately 147 million adults enrolled in postsecondary education (Aslanian & Brickell, 1988). Darkenwald and Merriam (1982) and Aslanian and Brickell (1988) discuss the demographics and characteristics of the adult learner and the reasons these students enroll in community colleges.

Current trends in the United States suggest the need for an increase in the technical skills of workers in all career areas. In Workforce 2000, Johnson and Packer (1987) stress the importance of a well-trained, well-educated workforce and the need for postsecondary education for the majority of jobs, "As the society becomes more complex, the amount of education and knowledge needed to make a productive contribution to the economy becomes greater (p. xxvi)." American workers who possess strong skills in high technology, reading, and math are necessary for the future economic growth of this country. Many jobs will require a bachelor degree as the minimum entry standard and additional technical skills will be expected for job currency (Johnson & Packer, 1987).

Most adults change careers five times during their work lives (Herr & Cramer, 1988) and most of the career or job changes require additional training (Darkenwald & Merriam, 1982). Typically, adults make career decisions between the ages of 18-22 and plan their education accordingly. As adults mature, they experience transitions in their lives which often require continuing education (Herr & Cramer, 1988). From the time of their establishment, American community colleges have provided credit and non-credit career training opportunities for adults (Cohen & Brawer, 1986). Adults with degrees are enrolling in technical

and vocational programs at community colleges primarily for career enhancement. However, reasons for enrolling are not fully or, in some cases, not at all documented by community colleges (Hale & Wattenbarger, 1990).

Research on Adults in Community Colleges

In general, research on adults in community college is anecdotal and historical in nature. The literature falls into two basic categories. For the purposes of this study, category one literature represents community college responses to adult learners; and category two represents literature on information about adult learners.

Community College Response to Adult Learners

Community colleges have been aware of the potential enrollment growth adult learners present. With diminishing numbers of recent high school graduates and competition from other educational institutions and the military, community colleges have turned to the adult within their service regions as a supplementary source fro students. Also, it is clearly with the mission of most, if not all, American community colleges to provide open-door, multi-curricular services to all citizens they serve (Cohen & Brawer, 1986).

Most response-type literature discusses the enrollment trends of adults into community colleges (Davidson, et al., 1989; Kasworm, 1980; Aslanian, 1986; Migden & Bradley, 1992; Champagne & Petitpas, 1988). Researchers cite the ever increasing numbers and the projections for continued enrollment. In addition, the literature cites adults enrolling for career-related reasons that include upgrading skills and preparing for career change.

Research on community college responses to their adult learner populations describes specific program designed for preparing adults for entry into higher education. Literature on specific programs for adults contains reviews of administrative and instructional strategies that can assist adults who may be entering higher education for the first time (Davidson, et al., 1989; Champagne & Pettipas, 1988).

Kasworm (1980) and Migden and Bradley (1992) present quantitative studies on community college response to adult learners. Kasworm describes a study that used instrumentation to solicit faculty member and administrators knowledge and belief about adult learners in community college. The purpose of the study was to assist college personnel in dispelling myths about adult learners and in facing more realities about adult learners in general. Participants in the study compared their knowledge of adult learners to research findings about adults. For the most part, community college personnel viewed their adult learners as different from adult learners at other colleges and universities according to preparation for college and attitude toward education in general. The study was designed to assist colleges in opening up discussion among administrators, faculty members, etc. on the climate a school presents to its adult learners. Kasworm's study presents some important groundwork to a study on adult learner student involvement. Kasworm encourages community colleges to assess their climates and attitudes toward adult learners. A study on adult learner involvement methods and levels can contribute to a campus discussion about planning programs, events, and opportunities for adult learners.

Migden and Bradley (1992) provide one of the rare studies of alumni community college adult learners. The Community and Technical College study surveyed alumni who were 24 years or older at the time of matriculation into the college. Adult learner alumni were asked about their educational goals and

overall satisfaction with the college in obtaining those goals. The purpose of the study was to determine how satisfaction or dissatisfaction with the school could assist in planning and programming for future adult learners. The study results demonstrate that the alumni were generally satisfied with their educational experiences and found that earning the associate degree had prepared them for job entry of choice. One finding from the study indicates that the alumni were not especially satisfied with academic advising services offered. Migden and Bradley did not ask alumni any involvement-related questions but indication of dissatisfaction with advising could be an indicator of alumni lack of involvement with faculty members. The study did not seek to describe student involvement levels of its adult learner alumni but the study reported that overall the adult learner alumni did not use many of the services available to them at the college. This lack of use of services does not indicate lack of involvement by the adult learners but rather that adult learner involvement takes different forms than traditional age college students.

The Office of Adult Learning Services of the College Board (Aslanian, 1986) has conducted studies on the enrollment trends of adult learners in community colleges and the community colleges' responses to the adults. One conclusion drawn from data analyses was that adult learners are not viewed as prestigious students to community college administrators. Adult learners who are first time enrollees into higher education, in particular, are not especially sought after by community colleges. Aslanian concludes that the reluctance to recruit adult learners stems from older administrators holding traditional views of who a college student is and desire to enroll students more likely to go on to transfer and therefore reduce outside criticism of community college transfer rates. The traditional age college student is more likely to fit the model of college students and to transfer therefore they continue to be the major population recruited by

community colleges. Aslanian makes the point that proprietary schools recruit, retain, and graduate adult learners and do so because they recognize that adult learners represent the only growth area enrollment population available. She recommends community colleges fall into step. Aslanian's report was published in 1986 and while perhaps not as fitting today as in the mid 80s. the shortage of literature on adult learners in community colleges indicates that the colleges remain uncertain on what to do with adults who represent future students.

Other research on adult learners in community colleges focuses on understanding and adapting to adult learning styles (Davidson, et al., 1989; Graham, 1987; Graham, 1988). The consensus of learning style-related research is that adult learners are active learners who seek relevant subject matter. They are highly pragmatic and want teaching methods that allow them to adapt their life experiences and prior knowledge to course content. The learning style research supports that the student involvement methods used by adult learners is probably an interaction of classroom and daily life experiences.

Categories of adults enrolling community colleges

The literature on adult learners in community colleges supports that generally adults enrolling in community colleges are either highly aware of college experiences and know what to expect or else have no previous experiences with higher education and no basis to know what to expect. Of those students experienced in higher education, the reverse transfer with degrees (RTDs) make up a growing community college student population. Among the students with no higher education experience are the women categorized as displaced homemakers. Both of these groups of adult learners represent a large percentage of adult learners in community colleges. Researchers have completed substantial work on both student groups and

therefore, those studies are shared at this time as a means to illustrate two categories of adult learners having a significant impact on community colleges.

Reverse transfers with degrees (RTDs).

The Reverse transfer with degree (RTD) comes to the community college holding a bachelor degree or higher. The RTD is usually older, married, employed full-time, and enrolled in a vocational or technical program (Slark, 1982; Ross, 1982). Generally, these students are enrolled part-time and pay for their education through work or savings (Rooth, 1979; Renkiewicz, et al., 1982). Ross (1982), Mitchell (1984) and Slark (1982) found that reverse transfers with degrees cited occupational upgrading and personal interest as the major reasons for enrolling in a community college. Renkiewicz, et al., (1982) state, "the concerns of these students [reverse transfers with degrees] regarding their marketability, perhaps, points to their inability to get a job of their choice after receiving their baccalaureate degree," (p. 54).

Displaced homemakers.

Displaced homemakers are largely female and single parents. Most have not worked outside the home. If they have work experience, the work is in unskilled, part-time, placements. Displaced homemakers began enrolling in community colleges in substantial numbers in the early 80s (Griffen & Olsen, 1988). In the mid 80s the Carl Perkins Vocational Equity Act provided funding to community colleges that was earmarked to assist the displaced homemakers. The Vocational equity programs introduced thousands of women into community college programs during the mid to late 80s. In particular the Voc equity programs enabled women to receive training in career areas largely held by men (Griffen & Olsen, 1988).

Community College Responses to Adult Learners

Adults students have enrolled in community colleges in increasing numbers since the early 80s. For the most part, community colleges have attempted to meets the needs of these students through adaptation of existing programs and service delivery (Graham, 1988) Of major concern to community college practitioners was preparing the adult students for reentry to academics after years in the workforce (Terry, 1985). Colleges used needs assessments to gather information from faculty and students on what would best help new adult students in college. Literature on adult transition to college features learning style discoveries, recruitment methods, and academic assistance-related outcomes. Community colleges view adult learners as a specific population with specific needs different from the traditional college student.

Adults in Community College Vocational Technical Programs

While there is limited research on adult learners in community colleges, the research that is available reports that adults are enrolled in programs largely to prepare for entry to specific career areas or to prepare for career change. However, there is basically no research on specific characteristics or qualities of adult learners in vocational technical programs. We know from the work and funding of Carl Perkins Vocational Equity programs that many adult learners have been introduced to nontraditional according to gender occupational training (Terry, 1985), but there is little information on the students from the viewpoint of their college experiences.

The literature on adults in community college vocational technical programs speaks to the functions and missions community colleges have in preparing and retraining the American workforce. The community colleges are in prime positions to provide both the current and future workforce training needs in

the United States (Terry, 1985; Nolte, 1992). Terry (1985) projected that the majority of students in vocational technical training in the 90s would be adult learners.

The Two Year College Development Center at New York University at Albany prepared a research report on adult learners in vocational technical programs in New York community and technical colleges. The research report presents adult learners in vocational technical training by category of students according to the needs of the students. The categories are students needing credit for prior learning or experience; older adults in retirement needing social, personal, and vocational training; GED recipient career training; opportunities and facilities for adults planning four year career programs; and training to upgrade skills and effectiveness of employees in the communities (Two Year College Development Center, 1988, p. 5). The purpose of the New York study was to demonstrate the varied and numerous needs of adult learners in vocational technical programs and to indicate the many and specific services each category of student needs.

The majority of literature on adult learners in vocational technical programs comes from educators involved in programming funded by the Carl D. Perkins Act. In the 80s, the Perkins Act opened up vocational training to adults. In particular, the Perkins Act provided educational opportunities to adults who otherwise would not have been able to attend college, for example, low income adults, displaced workers, single parents, and other disadvantaged adult learners (Terry, 1985).

Other literature on adult learners in vocational technical programs focuses on the need for community colleges to respond to future workforce training needs, for example, high tech. changes; aging workforce skill updating; and

preparing workers new to the workforce, for example, welfare recipients and non-English speaking citizens (Long, 1985; Reece, 1985; Nolte, 1992).

The literature presents adult learners in vocational technical programs from the perspective of the community college responses to this increasing student population. In fact, the literature on adults in voc-tech stresses that adult learners represent the majority of future students in vocational technical programs. Although the researchers and educators acknowledge the ever increasing presence of adult learners in voc tech, there is essentially no research on the students themselves. The global response to adults in community college voc tech programs seems to indicate that at some level specific research on the students themselves is called for. In particular, research that explains the college experience in terms of student involvement can provide educators with better information on how to prepare for and train the adult learners that enroll daily into community college programs.

Instrumentation

C. Robert Pace and his associates designed the Community College Student Experiences Questionnaire to assist educators in measuring student involvement at community colleges. The instrument developed from the College Student Experiences Questionnaire that Pace designed in 1979. The CSEQ has been used extensively at four year schools to measure student involvement and which types of involvement have the greatest influence on student learning and development. The assumption of the instrument is that learning requires time and effort and what students learn in college depends on the degree of quality of effort the students invest. Quality of effort is the interaction of time spent and usefulness of the activity to learning and development. Some activities require greater effort and have greater influences on learning and development and

therefore, reflect quality of effort. The Community College Student Experiences Questionnaire reflects the quality of effort premise adapted to a community college setting. The CCSEQ was first published in 1990 and no national norms have been established (Lehman, 1992). The CCSEQ is limited by its newness although studies support the instrument's high reliability and validity.

The Center for the Study of Higher Education, housed at Memphis State University, has used the CCSEQ extensively in its research of community colleges. Most recently, the center completed a study of students in Tennessee community colleges using the CCSEQ. Each of the seven schools involved in the studies were given an opportunity to submit research questions to be answered by the study along with the research questions put forth by the Center. This represents the largest study to date using the CCSEQ. In particular, the study reports on the student involvement similarity and differences of Caucasian and African-American Tennessee community college students (Douzenis & Murrell, 1992).

Friedlander and MacDougall (1992) conducted research on community colleges student involvement and they also used the CCSEQ. Findings from this study support the validity and reliability of the CCSEQ in providing information on student involvement at community colleges. Lehman (1992) used the CCSEQ to support the study of community college involvement of students enrolled in selected California community colleges.

Why the Study Is Justified

From the literature, it appears that the study of adult learners in higher education has caught the attention of researchers. Astin developed the theory of student involvement and encourages research related to his theory on different populations of students in order to determine how student characteristics can

affect levels of student involvement (Astin, 1984). While studies support four-year, residential colleges as being more likely to provide involving opportunities for students, these same studies urge additional research be done at community colleges for a more definitive explanation of what involvement means at these types of institutions (Kuh et al., 1991). Pace provides an excellent basis for the study of student involvement through his quality of effort constructs and Schlossberg, Lynch, and Chickering present the adult student development model that supports the study of adults as college students. Because there is a lack of research on community college student involvement and adult learners in community college vocational programs, there is support to study AVTs in light of Astin's theory of student involvement.

CHAPTER 3

METHODOLOGY

Overview of Chapter

The purpose of this study was to provide a descriptive analysis of the educational experiences of adults in enrolled in community college vocational technical programs according to their levels of student involvement, assessments of progress toward educational goals, and level of satisfaction with the college environment. This was accomplished by examining the overall educational experiences of AVTs compared to other community college student sub-population's educational experiences. Chapter 3 describes the research design, population, instrument, and data analysis applied in the study. The chapter begins with a description of the community college where the study took place and data collection procedures.

Des Moines Area Community College

This study examined students enrolled at Des Moines Area Community College (DMACC) in Iowa. DMACC is a publicly supported two-year institution serving the Des Moines metropolitan area and surrounding counties. The college has five campuses with the central or main campus in Ankeny, Iowa.

DMACC is accredited by the North Central Association of Colleges and Schools and is approved by the Iowa Department of Education and the Iowa Board of Regents. The college holds membership in the American Association of Community Colleges (AACC).

DMACC offers degrees, diplomas, and certificates in 42 programs. DMACC A.S., A.A., and A.A.S. degree programs require students to hold a high school diploma or equivalency in order to enroll. The college programs are

offered within four divisions: Business/Management, Health Services and sciences, Industrial and Technical, and, Humanities and Public Services.

For the purposes of this study, DMACC courses were identified that would provide access to the widest number and variety of DMACC students attending the Ankeny campus. DMACC instructional administrator Dr. J. L. Ghanatabadi analyzed enrollment patterns and numbers for all DMACC courses and determined that seven courses enroll the majority of students in all of the degree programs at the college. The courses identified are taught both during the day and in the evening. Students enrolled in classes of the identified courses could be attending full-time or part-time and could be a college transfer or vocational technical student or preparing for entry to a selected vocational technical program such as nursing. The courses are as follow, as described in the 1993-94 Des Moines Area Community College Catalog:

1. ACCT 101 Principles of Accounting I--Introduces the student to the principles of accounting with emphasis placed on the users and uses of accounting information. The double entry bookkeeping system is presented with a focus on the end result of the accounting cycle, the financial statement.
2. BIOL 127 Human Biology--A study of biology which emphasizes the human body. Topics such as the cell, basic chemistry, basic genetics and human ecology are included. Designed for the non-science and inadequately prepared health science major.
3. BIOL 132 Health Science Microbiology--Basic concepts and applications of medical microbiology. Topics include morphology and physiology of microorganisms, pathology, epidemiology and immunology. Designed for the health science major.

4. COMS 181 Intro. to Computer Literacy--Presents the basic concepts of computers and the effect that computers are having and will continue to have, in the future. Incorporates theory as well as hands on practice by looking at examples of computers at work in the real world, and exploring the principles behind the application. Includes an introduction to basic programming.

5. COOP 220 Pre-employment Seminar--Covers all aspects of professional job placement procedures including goal setting, developing prospective employer lists, resume writing, job application forms, employment tests, wardrobe, interviewing and follow-up.

6. ENGL 117 Composition I--Designed to help students write effective prose. Exploration of relationship of audience to writer and material. Emphasis on developing concrete detail to support main idea.

7. MATH 410 Mathematics for Technicians--A course in elementary mathematical skills for technicians. Topics covered include fundamental operations with whole numbers, fractions, decimals, and signed numbers; percents; geometric figures and basic constructions; area and volume formulas; English Metric systems; measurement; and the interpretation of graphs and charts.

Human Subjects Protection

Permission to conduct the DMACC study was obtained after an initial contact with the Chief Academic Officer (CAO) and Chief Student Affairs Officer (CSAO) at Des Moines Area Community College. After contacts with these officials, contacts were made with the Division Chairpeople and with faculty members teaching class sections of the courses identified for the study.

Participation in this study was voluntary and all participants were informed of their ability to withdraw from the study after agreeing to participate. The research procedures fell under the scrutiny of both Des Moines Area Community College and Drake University human subjects policies.

Methodology

Instrumentation

Community College Student Experiences Questionnaire (CCSEQ)

The CCSEQ was designed to measure community college student involvement. At the time the CCSEQ was introduced it was the only instrument of its kind available (P. Lehman, personal communication, April 27, 1993). The CCSEQ is a derivative of the College Student Experiences Questionnaire (CSEQ), developed by Robert Pace in the mid-70s and used extensively at four-year schools to measure student involvement. Studies support that the CCSEQ is a valid and reliable instrument.

The CCSEQ quality of effort scales measure the amount of time and effort a student puts into various areas of a college experience (Lehman, 1992). Quality of effort is defined as "the amount, scope, and quality of effort students put into taking advantage of the opportunities offered to them by the college." (Pace, 1984, p. 23) The CCSEQ measures how often during the school year students engage in a variety of activities related to the use of campus facilities and other opportunities to increase their academic and personal growth (Lehman, 1992, p. 10).

The activities areas that make up quality of effort measured by the CCSEQ are: course activities; libraries; faculty; student acquaintances; art, music, and theater; writing activities; science activities; and, vocational activities. Questions within each of the areas measured are weighted as some activities require more

time and/or effort. Some activities within each area are of higher quality than others. Therefore the instrument provides information that reflects how involved students are in all levels of community college activities.

The CCSEQ also measures an individual student's satisfaction level with the college environment. The college environment section measures by scale score a student's perception of the environment of a community college according to the degree to which the student finds the other students friendly and supportive, how approachable the instructors are, and five other questions related to overall college environment.

Responses to questions in the college environment section of the CCSEQ are grouped to give a scale score ranging from one to eight. A score of one indicates low satisfaction with the college environment and eight indicates high satisfaction with the environment.

The third section of the CCSEQ measures an individual student's estimate of gains or how well the student feels he/she is progressing toward educational goals. Students are asked to respond to a series of questions related to 23 educational goals. Goals include student learning skills that lead to employment and questions about student values toward learning and education. Each response provides a scale score for a particular educational goal. The grouping of the 23 scale scores provides a score indicating progress toward educational goals overall.

The scale scores for involvement, assessment of progress toward goals, and satisfaction with environment of groups of students can be analyzed together to provide a profile of college experiences of specific groups of students. For comparison purposes, scale scores for involvement can be compiled and analyzed for differences.

The five reasons for enrollment used in this study appear in the CCSEQ's additional questions section. The five reasons for enrollment are: (1) to prepare for career change; (2) to upgrade current job skills; (3) to prepare for transfer to four-year school; (4) to prepare for job entry; and (5) for personal interest. Respondents were asked to choose one best reason of the five provided.

Data collection procedures

The CCSEQ was administered in class either prior to or at the end of class time. The researcher, her assistant, and a DMACC representative administered the instrument. Because of faculty member cooperation, all instruments were administered during class time avoiding the need to ask students to complete the questionnaires outside of class and return them the next class meeting time.

Students completed only one CCSEQ. Those people distributing the questionnaire announced to students that if they had completed the questionnaire in another class to not complete another questionnaire. A total of four students had completed the questionnaire previously.

Population and Sample

Population

The participants consisted of students enrolled in selected sections of classes of seven DMACC courses. The courses were Principles of Accounting 1, Pre-Employment Seminar, Intro. to Computer Literacy, Human Biology, Health Science Microbiology, and English Composition I. These seven courses were taught at the Ankeny campus of DMACC during the day and the evening.

Study participants consisted of students enrolled in a section of the seven courses during the fall, 1993, semester. Therefore study participants consisted of day and evening, full and part time students enrolled at the DMACC Ankeny

campus . According to DMACC instructional administrators, participant students represented enrollees in most of the DMACC degree programs.

Sampling procedure

The procedure to select study sample was as follows:

1. Based on financial and logistical restraints, DMACC personnel determined that 400 Ankeny campus students would be surveyed
2. As previously stated, 7 courses were identified by DMACC administrative personnel as enrolling both vocational technical, college transfer, day and evening, and adult and traditional age learners.
3. For the Fall, 1993, term, there were 95 class sections of the seven courses chosen for the study
4. Of the 95 class sections, 11 were evening classes. It was decided to survey all of the 11 evening classes. This represented an enrollment of approximately 200 students.
5. In order to survey an additional 200 students from the day classes, it was determined that 9 of the 84 day classes would be selected.
6. A random start process was used to select the 9 of the 84 day classes.
7. The study sample consisted of students in class on the day CCSEQ was scheduled for distribution.

Data analysis

The following research questions guided the data analysis. Each question was answered according to individual and grouped responses to various sections of the CCSEQ and the local questions added to the questionnaire.

Research Questions

Abbreviation key:

ALs-Adult learners

TLs-Traditional age learners

ACTs-Adults in college transfer programs

AVTs-Adults in vocational technical programs

TVTs-Traditional age learners in vocational technical programs

Student involvement.

Are there differences in levels of student involvement between ALs and TLs?

Are there differences in levels of student involvement between AVTs and ACTs?

Are there differences in levels of student involvement between AVTs and TVTs?

Assessment of progress toward goals.

Are there differences in assessment of progress toward educational goals between ALs and TLs?

Are there differences in assessment of progress toward educational goals between AVTs and ACTs?

Are there differences in assessment of progress toward educational goals between AVTs and TVTs?

Satisfaction with college environment.

Is there a difference in level of satisfaction with college environment between ALs and TLs?

Is there a difference in level of satisfaction with college environment between AVTs and ACTs?

Is there a difference in level of satisfaction with college environment between AVTs and TVTs?

Data Collection

The CCSEQ was distributed to Des Moines Area Community College students during the weeks of November 30, 1993 and December 8, 1993. Students completing the CCSEQ were in attendance at the time the questionnaire was distributed to class sections of specific courses. Of the 400 CCSEQ's available for distribution, 361 were completed and processed for data analysis.

Data Analyses

Data analysis procedures included ANOVA, T-test, Chi Square, and frequency distribution.

The following notes on data analysis procedures are provided to clarify data analysis reported in the chapter.

ANOVA-ANOVA was used in the analysis of student involvement scales scores where assumptions of normality were met. Normality was determined by examination of box plots of all the scale scores of all the groups of students studied. In the case of scale scores for Art, Music, and Theater, assumption of normality was not met. All of the Art, Music, and Theater involvement scale scores were extremely low or with extensive outliers. T-test was used as the method of analysis but not reported in the text of this study. Results from the Art, Music, and Theater involvement scale scores are listed in the study Appendix.

T-test--T-test was used to analyze Vocational Technical student comparisons. The reporting of differences when using T-test reflects the unequal variances. Use of unequal variance rather than equal variances provides a more accurate analysis and provides for inclusion of data analysis in any future meta-analysis studies.

Chi-Square--Chi Square provided data analysis methods for comparing student gain. Student gain was reported by students rating gains on a scale of "very little, some, quite a bit, and very much." These responses corresponded to numerical scores of 1-4, with 1 representing "very little gain," and 4 representing, "very much." Chi Square analysis of gain was based on comparisons of each response score and on combining, "quite a bit," and "very much," scores. The combination of responses 3 and 4 did not affect the statistical outcomes of the gain scores.

A personal computer, Number Cruncher software, and StatView 510 software were used to compute data analyses.

ANOVA and T-test are reported in Chapter 4 in a table for all scores and not by individual ANOVA and T-test tables. Each ANOVA and T-test table is located in the Appendix of this study.

Summary

The purpose of this study was to provide a descriptive analysis of the educational experiences of adults in enrolled in community college vocational technical programs according to their levels of student involvement, assessments of progress toward educational goals, and level of satisfaction with the college environment. This was accomplished by examining the overall educational

experiences of AVTs compared to other community college student sub-population's educational experiences. This study provides a comprehensive, quantified description of adult learner and traditional age learners' educational experience. The study focused in particular on AVTs' educational experiences and documented those experiences according to levels of student involvement, assessments of progress toward educational goals, and satisfaction with the college environment. This study presents those activities, events, attitudes, and behaviors practiced and supported by AVTs and that contribute to their educational experience.

CHAPTER 4

FINDINGS

Overview of Chapter

The purpose of this study was to provide a descriptive analysis of the educational experiences of adults in enrolled in community college vocational technical programs according to their levels of student involvement, assessments of progress toward educational goals, and level of satisfaction with the college environment. This was accomplished by examining the overall educational experiences of AVTs compared to other community college student sub-population's educational experiences. Chapter 4 reports on the results of the study's data collection and analysis. The chapter begins with a summary of descriptive information students completing the study's survey instrument, the CCSEQ.

Survey Compilation

Students completing CCSEQ	361
Adult Learners	167
Traditional age Learners	194
Adults in Transfer/General Ed.	83
Traditional age in Transfer/General Ed	127
Adults in Voc. Tech.	84
Traditional age in Voc Tech.	67

AVT Descriptive Information

Age ranges

20-22 years old	7
23-27 years old	50
28-39 years old	26
40 - 55 years old	2
over 55	0

Males and females

Males	30
Females	55

Race

American Indian	1
Asian	0
Black	0
Hispanic	0
White	83

Reasons for attending

To prepare for career change	50
To upgrade current job skills	22
To prepare for transfer to a 4 year school	1
To prepare for job entry	7
For personal interest	5

Number of credits taken during term of survey

less than 6 credits	27

6 - 8 credits	22
9 - 11 credits	9
12 - 15 credits	18
more than 15 credits	7

Total number of credits taken at DMACC

1 - 15 credits	36
16 - 30 credits	22
31 - 45 credits	12
46 + credits	12

Day and/or evening class schedule

Day classes only	17
Evening classes only	20
Both day and evening classes	46

Number of hours per week employed

None, not employed	12
1 to 10 hours	4
11 to 2o hours	6
21 to 30 hours	8
31 to 40 hours	23
more than 40 hours	30

Number of hours per week preparing for classes

1 to 5 hours	30
6 to 10 hours	33

11 to 15 hours	11
16 to 20 hours	5
over 20 hours	4

Research Questions

Student Involvement

Student involvement levels were measured by Quality of Effort scale scores. Scale scores were compiled according to individual and grouped responses to a series of questions within each of the Quality of Effort constructs. The constructs were: Course Activities; Faculty; Library Activities; Student Acquaintances; Art, Music, and Theater Activities; Writing Activities; Science Activities; and Vocational Skills. As mentioned in Chapter 3, absence of normality prohibited the interpretation of any of the responses to involvement with Art, Music, and Theater Activities.

Are there differences in levels of student involvement between ALs and TLs?

There are differences between levels of involvement of ALs and TLs. In four of the six involvement areas, TLs measured higher levels of involvement than ALs. In two areas of involvement, there were no differences between ALs and TLs.

Table 1

Analysis of Variance of AL and TL Quality of Effort Scale Scores

Variable	Adult Learner	Traditional age Learner	F
Course Activities			0.24
Mean	23.222	23.304	
S.D.	5.142	4.425	
N	153	194	

Library Activities			8.48*
Mean	10.039	11.535	
S.D.	3.974	3.705	
N	153	198	
Faculty			5.56*
Mean	13.677	14.561	
S.D.	3.253	3.978	
N	155	194	
Student Acquaintances			5.29*
Mean	9.429	10.622	
S.D.	3.222	3.617	
N	156	196	
Writing Activities			8.78*
Mean	19.296	21.176	
S.D.	5.95	5.826	
N	155	198	
Science Activities			0.03
Mean	13.375	13.686	
S.D.	5.524	5.267	
N	149	188	
Vocational Skills			0.03
Mean	15.362	16.06	
S.D.	5.95	6.751	
N	102	100	

* p< .05

Are there differences in levels of student involvement between AVTs and ACTs?

The results of statistical analysis using ANOVA indicate there are no differences in levels of student involvement between AVTs and ACTs.

Table 2

Analysis of Variance of AVT and ACT Quality of Effort Scale Scores

Variable	AVTs	ACTs	F
Course Activities			1.905
Mean	23.738	22.594	
S.D.	4.459	5.789	
N	84	69	
Library Activities			.156
Mean	10.157	9.9	
S.D.	4.148	3.823	
N	83	70	
Faculty			.515
Mean	13.847	13.471	
S.D.	3.459	2.962	
N	85	70	
Student Acquaintances			.104
Mean	9.353	9.521	
S.D.	3.046	3.455	
N	85	71	

Writing Activities			.389
Mean	19.571	18.972	
S.D.	5.285	6.68	
N	84	71	
Science Activities			.928
Mean	12.975	13.853	
S.D.	5.547	5.529	
N	81	68	
Vocational Skills			.231
Mean	15.512	14.818	
S.D.	5.776	6.766	
N	80	22	

* p< .05

Are there differences in levels of student involvement between AVTs and TVTs?

The results of statistical analysis using T-test indicate there are differences at the .05 level of significance in student involvement between AVTs and TVTs. TVTs appear to have higher levels of student involvement activities in three areas than AVTs. In four areas, there are no differences between TVT and AVT levels of involvement.

Table 3

T-test of AVT and TVT Quality of Effort Scale Scores

Variable	AVTs	TVTs	t
Course Activities			0.354
Mean	23.738	23.985	
S.D.	4.45	3.982	
N	85	69	
Library Activities			1.47
Mean	10.15	11.086	
S.D.	4.14	3.53	
N	85	69	
Faculty			3.0*
Mean	13.847	15.671	
S.D.	3.458	4.027	
N	85	69	
Student Acquaintances			2.99*
Mean	9.352	10.897	
S.D.	3.04	3.319	
N	85	69	
Writing Activities			1.193
Mean	19.571	20.661	
S.D.	5.285	5.96	
N	85	69	

Science Activities			1.203
Mean	12.975	14.119	
S.D.	5.54	5.99	
N	85	69	
Vocational Skills			2.99*
Mean	15.512	18.606	
S.D.	5.77	6.43	
N	85	69	

* p< .05

Assessment of Progress toward Goals

Assessment of progress toward goals was measured by the Student Estimate of Gain scale scores. Students responded to questions about the extent to which they gained or made progress in 23 areas. Students responded with "very little," "some," "quite a bit," or "very much." Statistical analysis using Chi square enabled the data to be examined as reflecting gain, moderate gain, or little gain. A student response of "very little," was interpreted to mean little gain. Student combined responses of "very little" and "some" were interpreted to reflect moderate gain. Student combined responses of "quite a bit" and "very much" were interpreted to reflect gain.

The 23 areas that measure gain are identified in each of the Assessment of Gain tables by number. Each gain area is fully described below for reference while reading results.

Gain 1--Acquiring knowledge and skills applicable to a specific job or type of work
Gain 2--Gaining information about career opportunities
Gain 3--Developing clearer career goals
Gain 4--Becoming acquainted with different fields of knowledge
Gain 5--Developing an understanding and enjoyment of art, music, and theater
Gain 6--Developing an understanding and enjoyment of literature
Gain 7--Writing clearly and effectively
Gain 8--Presenting ideas and information effectively in speaking to others
Gain 9--Acquiring the ability to use computers
Gain 10--Becoming aware of different philosophies, cultures, and ways of life
Gain 11--Becoming clearer about my own values and ethical standards
Gain 12--Understanding myself - my abilities and interests
Gain 13--Understanding mathematical concepts such as probabilities, proportions, etc.
Gain 14--Understanding the role of science and technology in society
Gain 15--Putting ideas together to see relationships, similarities, and differences between ideas
Gain 16--Developing the ability to learn on my own, pursue ideas, and find information I need
Gain 17--Developing the ability to speak and understand another language
Gain 18--Interpreting information in graphs and charts I see in newspapers, textbooks, and on TV
Gain 19--Developing an interest in political and economic events

Gain 20--Seeing the importance of history for understanding the present as well as the past
Gain 21--Learning more about other parts of the world and other people
Gain 22-- Understanding other people and the ability to get along with different kinds of people
Gain 23-- Developing good health habits and physical fitness

Are there differences in assessment of progress toward educational goals between ALs and TLs?

The results of statistical analysis using Chi Square indicate there are differences, at the .05 level of significance, in assessment of progress toward educational goals between ALs and TLs.

TLs reported more gain than ALs in Gains 6, 7, 9, 10, 13, 17, 18, 19, 21, and 23.

ALs reported more gain than TLs in Gains 1 and 22.

ALs and TLs both reported little gain in areas 5, 14, and 20.

Both TLs and ALs reported moderate gains in areas 2, 3, 4, 8, 11, 12, 15, and 16.

Table 4

Chi-Square of AL and TL Estimate of Gain Scale Scores

Gain Scale Score	Adult Learners	Traditional age Learners	p
Gain 1	moderate gain	little gain	.0005*
Gain 2	moderate gain	moderate gain	.2330
Gain 3	moderate gain	moderate gain	.0761
Gain 4	moderate gain	moderate gain	.0645
Gain 5	little gain	little gain	.4612
Gain 6	little gain	moderate gain	.0032*
Gain 7	little gain	moderate gain	.0073*
Gain 8	moderate gain	moderate gain	.3668
Gain 9	little gain	gain	.0013*
Gain 10	little gain	moderate gain	.0014*
Gain 11	moderate gain	moderate gain	.3865
Gain 12	moderate gain	moderate gain	.3068
Gain 13	little gain	moderate gain	.0028*
Gain 14	little gain	little gain	.2008
Gain 15	moderate gain	moderate gain	.2278
Gain 16	moderate gain	moderate gain	.2296
Gain 17	little gain	moderate gain	.0190*
Gain 18	little gain	moderate gain	.0008*
Gain 19	little gain	moderate gain	.0197*
Gain 20	little gain	little gain	.7351

Gain 21	little gain	moderate gain	.0007*
Gain 22	moderate gain	little gain	.0133*
Gain 23	little gain	moderate gain	.0072*

*p> .05

Are there differences in assessment of progress toward educational goals between AVTs and ACTs?

There are differences in assessment of progress toward educational goals between AVTs and ACTs. Each group of adult learners showed more gains in at least one area than the other group. ACTs reported more gain in areas 7 and 14 than did AVTs. AVTs reported more gain than ACTs in Gain area 1. Both AVTs and ACTs reported moderate gain in areas 2, 3, 4, 8, 11, 12, 15, 16, and 22. Both groups reported little gain in areas 5,6,9,10,13,17,18,19,20,21, and 23.

Table 5

Chi-Square of AVT and ACT Estimate of Gain Scale Scores

Gain Scale Score	AVTs	ACTs	p
Gain 1	moderate gain	moderate gain	.0005*
Gain 2	moderate gain	moderate gain	.0711
Gain 3	moderate gain	moderate gain	.1561
Gain 4	moderate gain	moderate gain	.5636
Gain 5	little gain	little gain	.6342
Gain 6	little gain	little gain	.2674
Gain 7	moderate gain	gain	.0274*
Gain 8	moderate gain	moderate gain	.4528
Gain 9	little gain	little gain	.0839
Gain 10	little gain	little gain	.1555
Gain 11	moderate gain	moderate gain	.2996
Gain 12	moderate gain	moderate gain	.938
Gain 13	little gain	little gain	.8011
Gain 14	little gain	moderate gain	.0474*
Gain 15	moderate gain	moderate gain	.3585
Gain 16	moderate gain	moderate gain	.404

Gain 17	little gain	little gain	.7598
Gain 18	little gain	little gain	.122
Gain 19	little gain	little gain	.3387
Gain 20	little gain	little gain	.1795
Gain 21	little gain	little gain	.0668
Gain 22	moderate gain	moderate gain	.0714
Gain 23	little gain	little gain	.3908

*p> .05

Are there differences in assessment of progress toward educational goals between AVTs and TVTs?

Statistical analysis using Chi Square indicates there are differences in estimates of gain at the .05 level of significance between AVTs and TVTs. Traditional age vocational technical students appear to have higher estimates of assessments of progress toward educational goals than AVTs.

TVTs reported more gain than AVTs in areas 2, 3, 8, 9, 12, 13, 17, 18, 21, 22, and 23

Both AVTs and TVTs reported gain in area 7 and 14; however, TVTs reported statistically significant, at the .05 level, more gain in area 14 than AVTs.

Both AVTs and TVTs reported moderate gain in areas 1, 4, 10, 11, 15, and 16.

Both AVTs and TVTs reported little gain in areas 5,6,10, 11, 19, and 20.

Table 6

Chi-Square of AVTs and TVT Estimate of Gain Scale Scores

Gain Scale Score	AVTs	TVTs	p
Gain 1	moderate gain	moderate gain	.6173
Gain 2	moderate gain	gain	.0029*
Gain 3	moderate gain	gain	.0097*
Gain 4	moderate gain	moderate gain	.1976
Gain 5	little gain	little gain	.4864
Gain 6	little gain	little gain	.1293
Gain 7	gain	gain	.1107
Gain 8	moderate gain	gain	.0127*
Gain 9	little gain	gain	.0002*

Gain 10	little gain	little gain	.0696
Gain 11	little gain	little gain	.2368
Gain 12	moderate gain	gain	.0363*
Gain 13	little gain	moderate gain	.0012*
Gain 14	gain	gain	.0081*
Gain 15	moderate gain	moderate gain	.3664
Gain 16	moderate gain	moderate gain	.6108
Gain 17	little gain	moderate gain	.0484*
Gain 18	little gain	gain	.0001*
Gain 19	little gain	little gain	.1272
Gain 20	little gain	little gain	.4162
Gain 21	little gain	moderate gain	.0426*
Gain 22	moderate gain	gain	.0105*
Gain 23	little gain	moderate gain	.0328*

*p> .05

Satisfaction With College Environment

The satisfaction scale score is based on responses to five items on the CCSEQ that represent a student's perception of the college environment. Students were asked to rate their satisfaction with interactions with other students, instructors, courses, support staff, and the college as a whole. The scale scores range from 5-25. A 5 would be a low satisfaction scale score and a 25 the highest satisfaction scale score.

Is there a difference in level of satisfaction with college environment between ALs and TLs?

Results of statistical analysis using ANOVA, indicate there is a difference at the .05 level of significance in satisfaction with the college environment between ALs and TLs. Adult learners appear to have a higher level of satisfaction with the college environment than traditional age learners.

Table 7

Analysis of Variance of AL and TL Satisfaction with College Environment Scale Scores

Environmental Satisfaction Scale Score	ALs	TLs	F
Mean	14.164	13.169	6.95*
S.D.			
N	152	195	

*p> .05

Is there a difference in level of satisfaction with college environment between AVTs and ACTs?

Results of statistical analysis using ANOVA indicate there is a difference at the .05 level of significance, in level of satisfaction with college environment between AVTs and ACTs. ACTs appear to have a higher level of satisfaction with the college environment than AVTs.

Table 8 : Analysis of Variance of AVT and ACT Satisfaction with College Environment Scale Scores

Environmental Satisfaction Scale Score	AVTs	ACTs	F
Mean	13.341	15.127	4.42*
S.D.	2.705	2.45	
N	85	83	

*p> .05

Is there a difference in level of satisfaction with college environment between AVTs and TVTs?

Statistical analysis using T-test indicate there is no difference at the .05 level of significance in satisfaction with college environment between AVTs and TVTs.

Table 9

T-test of AVT and TVT Satisfaction with College Environment Scale Scores

Environmental Satisfaction Scale Score	AVTs	TVTs	T
Mean	13.341	13.910	-4.28
S.D.	2.705	2.484	
N	85	67	

p> .05

Summary

Chapter 4 presented the results of the analysis of data collected using the CCSEQ. The following table summarizes the findings on each of the research questions that guided this study.

Table 10

Summary of Research Questions at .05 Levels of Significance

Research Question	Differences found
Are there differences in levels of student involvement between ALs and TLs?	yes
Are there differences in levels of student involvement between AVTs and ACTs?	no
Are there differences in levels of student involvement between AVTs and TVTs?	yes
Are there differences in assessment of progress toward educational goals between ALs and TLs?	yes
Are there differences in assessment of progress toward educational goals between AVTs and ACTs?	yes
Are there differences in assessment of progress toward educational goals between AVTs and TVTs?	yes
Is there a difference in level of satisfaction with college environment between ALs and TLs?	yes
Is there a difference in level of satisfaction with college environment between AVTs and ACTs?	yes
Is there a difference in level of satisfaction with college environment between AVTs and TVTs?	no

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Overview of the Chapter

Chapter 5 provides a summary of the study and discussion, conclusions, and recommendation from the data collected and analyzed in the study. The chapter begins with a discussion of the findings.

Discussion

Adults in vocational technical programs have been largely left out of research studies and, subsequently, knowledge of this student group has relied almost solely on results of research on adult learners, overall, or on studies involving traditional age learners in vocational technical programs. This study presents a snapshot of AVTs as a unique student group within the context of a community college's whole student body.

The findings of this study are discussed by student involvement findings, followed by findings on gain areas, and then by level of satisfaction.

Adult Learners and Traditional Age Learners

To begin, this study analyzed the levels of student involvement, gains, and satisfaction of adult learners compared to traditional age learners. This analysis sets the groundwork for the individualized study of AVTs as a student group within adult learners.

Involvement

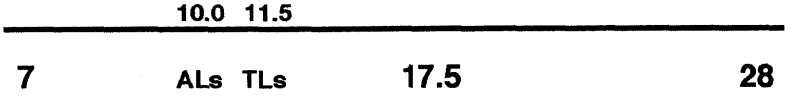
Adult learners appear to have lower levels of student involvement in some of the areas measured and the same levels of student involvement in other areas

measured. There were no areas measured where ALs had higher levels of involvement than TLs. The areas where TLs measured higher levels of involvement than ALs are as follows:

Library Activities--The use of the campus library can be seen as activities that the traditional age college student, especially the full time TL, would be involved in. Neither the ALs nor the TLs reported especially high levels of usage of library facilities. In fact both groups scored just above the minimal involvement level. On an anecdotal note, as the data was collected in the classrooms, in every class where there were adult learners, at least one AL would state that he/she used his/her community library and not the college library. The scale below shows where the AL and TL scores fall within the scale score range for library activities.

Scale 1:

Library Activities Scale Scores for ALs and TLs

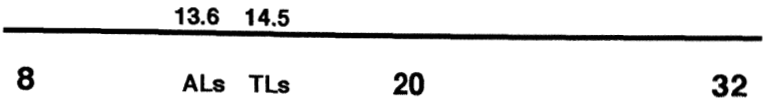


Faculty--This was a somewhat surprising finding in that it would seem an adult would be more comfortable approaching a faculty member, asking for assistance, or discussing a class topic, than would a TL. The time adults spend on campus versus the time TLs spend on campus could explain the differences in faculty member interactions. Astin (1982) rates interaction with faculty members as one of the most important areas for students to receive the full measure of college experiences. Four year, residential colleges provide the best opportunities for student faculty

interaction and commuter institutions provide the least (Astin, 1982). It appears that this study supports those findings.

Scale 2:

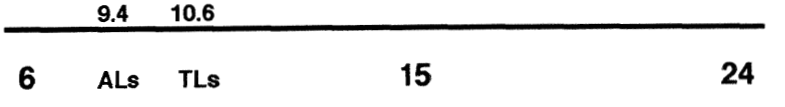
Faculty Activities Scale Scores for ALs and TLs



Student Acquaintances--TLs seek out relationships with other students much more so than do ALs. The CCSEQ inquired about academic not social interactions with other students. Therefore, this type of involvement reflects how often and to what degree students use other students as learning resources and support.

Scale 3:

Student Acquaintances Activities Scale Scores for ALs and TLs

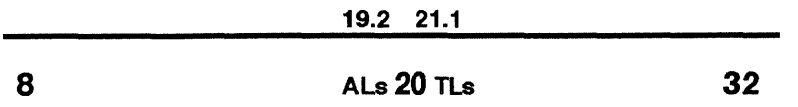


Writing Activities--While TLs reported higher levels of involvement in writing activities than ALs, both groups measured relatively high levels of involvement in writing activities, overall. More of the traditional age students in this study were enrolled in English classes than were the adults in the study and that possibly explains the differences between ALs and TLs. The levels of involvement in writing activities for both groups

indicate that classes other than English include writing activities as assignments or coursework.

Scale 4:

Writing Activities Scale Scores for ALs and TLs

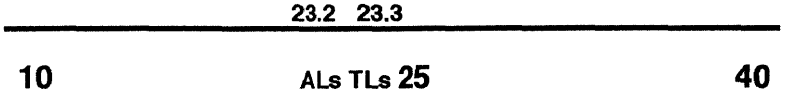


The areas of involvement where there were no differences between ALs and TLs were as follows:

Course Activities--Both ALs and TLs appear to devote the same amount of involvement in course activities. Both groups measure relatively high levels of involvement in course activities. The differences in levels of involvement between ALs and TLs clearly disappear when the adults enter the classroom.

Scale 5:

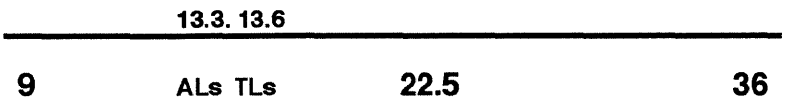
Course Activities Scale Scores for ALs and TLs



Science Activities--Both ALs and TLs appear to spend the same amount of time on science related activities. The scale scores for both groups of students is somewhat low and appears to reflect the fact that, for the most part, neither the adults nor the traditional age students in this study were enrolled in science courses.

Scale 6:

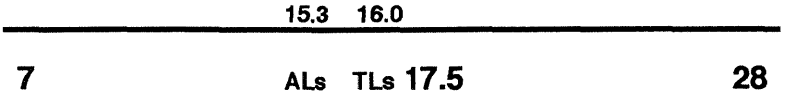
Science Activities Scale Scores for ALs and TLs



Vocational Skills--For this one area of involvement, only those students enrolled in vocational technical programs were to complete this section of the questionnaire. Of the 102 adults that completed this section, 85 were enrolled in vocational technical programs. Of the 100 TLs that completed this section, 69 were enrolled in vocational technical programs. The conclusion reached is that the students did not clearly read the instructions and automatically completed this section. For this reason the results of comparing ALs to TLs from this section are difficult to interpret and to generalize. For the most part, students completing this section did not distinguish vocational skill building to vocational technical programs.

Scale 7:

Vocational Activities Scale Scores for ALs and TLs



Gains

The assessment of progress toward goals, also referred to as gain, scale scores, are based on students self-reporting their progress. There were 23 areas of gain measured. The TLs reported more gain in 11 areas than did the ALs. In one area, Gain 1, the ALs reported more gain than did the TLs. In 11 areas, the TLs and ALs reported the same amount of gain. It appears that, overall, TLs experienced more gain from college than ALs.

When making developmental and growth comparisons, it is not surprising that the traditional age college student gains more than a 30 year old college student. What is not clear from this study is if there are gains made by ALs that are not reflected in the areas measured. The CCSEQ is not designed for only traditional age college students but the gain areas measured center on growth an educator would expect to see in traditional age college students. While ALs in this study experienced gains in some areas at the same level as traditional age students, the TLs' gains far exceeded the ALs. The box below summarizes the gains of each group:

ALs	TLs
Gains in 10 of 23 areas	Gains in 18 of 23 areas

The conclusion that TLs made more gains than ALs is accurate, but falls short of wholly describing the educational experiences of ALs in this study. A qualitative study of adults' gain in college can provide information that, perhaps, better describes the gains adults make in college.

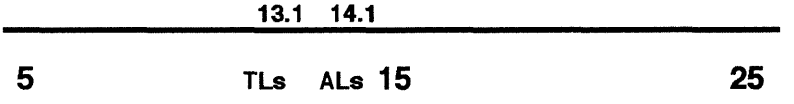
Satisfaction with college environment

ALs measured a higher level of satisfaction with the college environment than TLs. Other studies using the CCSEQ that compared students by age also

found the older learners measure higher levels of satisfaction (Friedlander & MacDougall, 1992; Knight, 1992). This is especially interesting in light of the differences in levels of involvement between the ALs and TLs. This satisfaction with the college environment supports Astin's theory that college students devote both physical and psychological involvement to their college experiences. The involvement areas that ALs measure the highest levels of, especially course activities, add up to a psychological investment in college activities and lead to the subsequent high levels of satisfaction with the college environment. The fact that TLs have higher levels of involvement and more gains than do ALs does not translate to differences between the groups in their satisfaction with the college.

Scale 8:

Satisfaction with College Environment Scale Scores for ALs and TLs



AVTs, ACTs, and TVTs

The descriptive analysis provided by this study was accomplished by comparing AVTs to other adult learners and to traditional age learners in voc-tech programs. The format for discussion compares and contrasts AVTs to other student groups. The similarities and differences found provide the descriptive analysis of AVTs' educational experiences.

Similarities and Differences Found

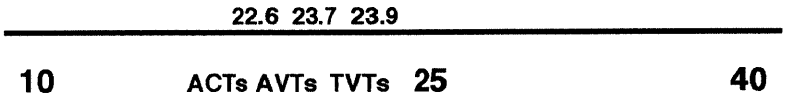
Involvement levels

AVTs involve themselves in the same types and same levels of involvement activities as other adult learners enrolled in a community college. The program of study does not appear to contribute to a difference in amount and level of student involvement. The areas of involvement include:

Course activities--The scale score range for course activities is 10 - 40. AVTs scored a 23.738 average with a SD of 4.459. ACTs scored 22.594, SD 5.789 and TVTs scored 23.985, SD 3.98. These scale scores indicate that AVTs are not the completely involved in every aspect of course activities but range above "never" and "occasionally" to the majority of items making up the course activities scale.

Scale 9:

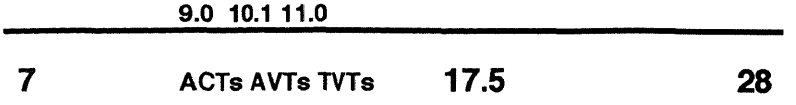
Course Activities Scale Scores for AVTs, ACTs, & TVTs



Library activities--The scale scores for library activities range from 7 to 28. AVTs' average scale score was 10.157, SD, 4.148. ACTs' average score was 9.9, SD, 3.823; and TVTs' was 11.086, SD, 3.53. Overall, these score indicate low usage of library facilities by all three student groups. AVTs do not use on-campus library facilities more than occasionally throughout a term.

Scale 10:

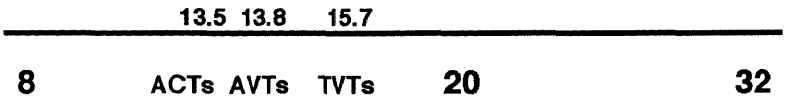
Library Activities Scale Scores for AVTs, ACTs, & TVTs



Faculty--The scale score range for faculty involvement is 8 to 32. AVTs scored an average of 13.847, SD, 3.459. TVTs' scored an average of 15.671, SD, 4.027. This significant difference indicates that TVTs meet with faculty members more often and use faculty members as a learning resource more often that AVTs. It appears that AVTs, along with the other adult learners in this study, only occasionally use faculty members as learning resources. It also appears AVTs rarely see and interact with faculty members outside the classroom.

Scale 11:

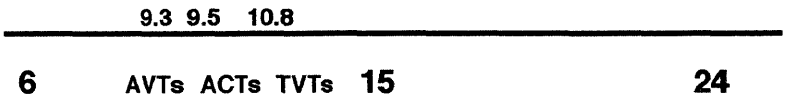
Faculty Activities Scale Scores for AVTs, ACTs, and TVTs



Student acquaintances--The scale score range for student acquaintances is 6-24. AVTs' average score was 9.352, SD, 3.04. TVTs' average was 10.897, SD, 3.319. This significant difference indicates TVTs' use acquaintances for study support and question and answer sessions more so than AVTs. AVTs like ACTs do not take advantage of other students as a resource for studying and preparing for courses. However, while AVTs use students as a resource rarely, TVTs only use other students as a resource occasionally.

Scale 12:

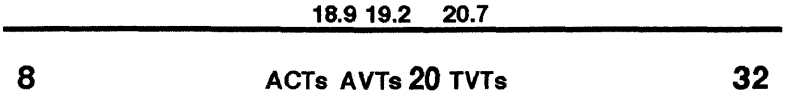
Student Acquaintances Activities Scale Scores for AVTs, ACTs, & TVTs



Writing activities--The scale score range for writing activities is 8-32. AVTs' scored 19.571, SD, 5.2. A difference in levels of involvement in writing activities was found between adult learners and traditional age learners. There were no differences in the level of involvement in writing activities between AVTs and ACTs nor between AVTs and TVTs. Overall, each student group examined measured relatively high levels of involvement in writing activities. AVTs appear to often involve themselves in writing activities. AVTs appear to follow a process in preparing written work. This process includes use of a dictionary and a computer. In addition, AVTs prepare outlines, check grammar and punctuation, and ask for feedback on draft materials.

Scale 13:

Writing Activities Scale Scores for AVTs, ACTs, & TVTs

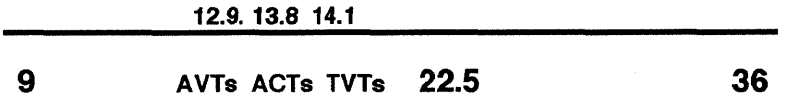


Science activities--The scale score range for science activities is 9-36. AVTs' average scale score was 12.975, SD, 5.547. This score indicates a low level of involvement in science activities. This low level of involvement

is shared by ACTs and TVTs. Science activities consisted of working in labs, applying scientific principles to experiments, discussing environmental concerns, and using knowledge of science to explain current issues. It would be expected that AVTs', by virtue of their chosen fields of study , would measure high levels of involvement in science related activities. This lack of involvement is both curious and alarming.

Scale 14:

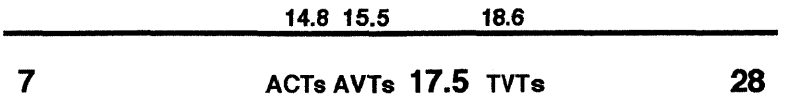
Science Activities Scale Scores for AVTs, ACTs, & TVTs



Vocational skills--The scale score for vocational skill involvement ranges from 7-28. AVTs' average scale score was 15.512, SD, 5.77. This indicates AVTs are often involved in skills that increase their abilities within a vocational technical field. TVTs scored significantly higher levels of involvement in vocational skills, indicating TVTs are "very often" involved in vocational skill building and practice.

Scale 15:

Vocational Activities Scale Scores for AVTs, ACTs, & TVTs



AVTs involve themselves in many of the same types of activities as do traditional age students in voc tech programs and at the same levels. However, TVTs are more involved with other students in areas such as studying together,

asking questions of other students, working with other students on class projects. TVTs measure higher levels of involvement with vocational skills. These areas include practicing a skill, watching someone perform a skill, overall learning of new skills. AVTs do not interact with other students outside the classroom. As students, AVTs do not appear to seek out practice and demonstration opportunities. These two areas of differences between AVTs and TVTs coupled with the AVT involvement in course activities indicate AVTs are self-starters who use classroom activities and individual studying to achieve their educational purposes.

AVT time and commuting restraints appear to contribute to the involvement AVTs choose within their educational experiences.
AVTs involve themselves marginally, as do ACTs and TVTs, in library activities, writing activities, and science activities. Marginally, because the scores in these areas are low within the range of scores for each of these involvement areas.

Gains

For estimates of gain, AVTs were asked to indicate their progress toward each goal by selecting (1) none, (2) very little, (3) some, (4) quite a bit, or (5) very much.

AVTs measured gain in two areas, at least moderate levels of gain in 10 of the 23 areas measured, and little gain in 11 of the areas. This is in contrast to ACTs who measured gain in one area, moderate gain in nine of the 23 areas, and little gain in 13 areas. Within that context, it appears AVTs made more gains, overall than ACTs. In two areas, AVTs measured statistically significant, at the .05 level, more gain than did ACTs.

ACTs, however, measured more gain in, "acquiring knowledge and skills applicable to a specific job or type of work." The most predominate reason for

enrolling in college for both ACTs and AVTs was to prepare for career change. However, it is surprising that the ACTs in their general education and transfer preparation coursework identify more gain in Gain 1 than do AVTs.

The areas where AVTs measured little gain were, for the most part, the same as ACTs. However, in two areas, "writing clearly and effectively," and "understanding the role of science and technology," AVTs measure significantly more gain than ACTs.

AVTs, while reporting more gains than ACTs, did not report as many gains as TVTs. TVTs reported statistically significant , at the .05 level, more gain than AVTs in 12 areas. Therefore, it appears that TVTs made more gain overall than AVTs. The box below summarizes the gains for AVTs, ACTs, and TVTs.

AVTs	ACTs	TVTs
Gains in 11 of 23 areas	Gains in 10 of 23 areas	Gains in 17 of 23 areas
Little gain in 12 of 23 areas	Little gain in 13 of 23 areas	Little gain in 6 areas

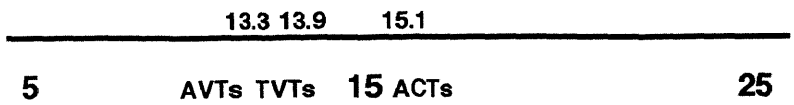
Satisfaction with college environment

The satisfaction scale score ranges from 5 to 25. AVTs' average scale score was 13,341, SD, 2.705. This score indicates AVTs are somewhat satisfied with the college environment. AVTs are less satisfied than ACTs and equally as satisfied as TVTs. Overall, AVTs appear to be only marginally satisfied with their college environment. Adult learners, overall, are more satisfied with their college environment than are traditional age learners. It appears that this higher level of

satisfaction score comes from those adults in the general education/college transfer programs and not from the AVTs.

Scale 16:

Satisfaction with College Environment Scale Scores for AVTs, ACTs, & TVTs



Typically, adult learners express high satisfaction with college. In this case, the AVTs are more satisfied than dissatisfied, but the scale score does not indicate an especially high level of satisfaction to be expected from a group of adult learners.

Astin's theory of student involvement research indicates that any student at any type of college can experience college effects. This appears to be true with AVTs. The types and levels of AVT student involvement appear to have led to gains and overall satisfaction with the educational experience. However, a study of completion rates and attainment of goals for enrolling in the college would give a better measurement of the effect colleges have on AVTs. That outcome was beyond the scope of this study and is discussed further under the implications for future research section of this study.

Conclusions

- AVTs' educational involvement largely centers on course and writing activities.
- AVTs experience moderate gains while in college.
- AVTs are only moderately satisfied with their college environment.
- AVTs differ somewhat from other adult learners in community colleges.

- AVTs differ substantially from traditional age learners in community college vocational technical programs.

Implications and Recommendations

For Theory

This study supports Astin's theory of student involvement. The levels of student involvement appear to lead to specific areas of gain for AVTs. In addition, the involvement and gains appear to be related to the AVTs' levels of satisfaction with the college environment. AVTs appear to devote much of their time and energy to those types of involvement Astin categorizes as psychological rather than physical.

Pace's Quality of Effort constructs appear to measure the amount and types of effort AVTs devote to their college experiences. Pace's theorizes that a college can only provide learning opportunities and, ultimately, it is up to the student to take advantage of the learning opportunities and thereby provide themselves with a quality education. The results of this study indicate that AVTs place themselves in the center of their learning experiences but they do not necessarily take advantage of many learning opportunities available.

For Research

This study points to the need for more longitudinal and outcomes based research on the educational experiences of adults in vocational technical programs. In addition, research that documents the trigger events that caused adults to enroll in vocational technical programs can be helpful in determining how to better provide involvement activities that meet needs of AVTs.

Areas of research that measure the AVTs' tie in of life, work, and community experiences and opportunities to their educational experiences could possibly lead to a better understanding of methods colleges could use to link the "outside world" to the AVTs' educational world.

AVTs make up a unique student group that differs from other adult learners in areas of gain and satisfaction with a college environment. The AVTs' educational experiences fit within student involvement theory although their types and levels of involvement differ from traditional age learners. Additional research on the descriptive analysis of AVT educational experiences can be useful. It is unclear from this study how the differences in full time and part time enrollment impact the AVTs' educational experiences.

For Practice

This study examined the educational experiences of AVTs by first measuring their levels of student involvement. These measurements revealed levels the same as or lower than traditional age vocational technical students. Two involvement areas in particular, faculty interactions and student acquaintances, surfaced as measuring at lower levels than TVTs. Both of these levels of involvement could perhaps be raised by specific interventions from the college and without demanding too much of the AVTs' additional time, a precious student resource for any adult learner.

Involvement with Faculty Members

Increased levels of involvement with faculty members could stem from faculty members having office hours prior to evening classes. Use of technology via electronic mail and bulletin boards can open faculty member-student access. Because these technologies are available at all times of the day and night, all

week, communication between faculty members and students can occur at the convenience of both groups.

Involvement with Student Acquaintances

The community college faculty members and administration can provide additional opportunities for interactions with other students by a number of interventions. Faculty members can provide assignments that allow for group activities that reward working with other students rather than presenting obstacles such as too many outside of class meetings or unclear segmentation of group tasks. Group interactions within the class can increase the amount of involvement students have with each other.

Car pool, study groups, and community based, out-of-class activities can increase the AVT interactions with other students and still preserve time spent on class assignments or program demands. Group assignments that take advantage of off-campus resources, including work site resources, can increase both student interactions and out-of-class learning, as well.

Policy

AVTs are pragmatic and goal oriented. They also appear to have a commitment to their educational experiences that translates into their moderate level of satisfaction with the college. Community colleges can better recognize this student group by offering credit for prior experiences, recognition for academic achievement beyond the traditional honors for grade point averages based on full-time enrollment, and internship experiences tied to AVTs' work, community, and social involvements.

Learning opportunities

As previously mentioned, AVTs come from complex and busy lives outside of college. It makes sense that many of the opportunities and experiences of AVTs can be linked to their programs of study. It appears, that AVTs may be

missing out on some learning opportunities available through interactions with faculty and other students. To compensate for this, colleges can give credit for experiences and/or on-the-job or volunteer based activities and, thereby, can acknowledge what AVTs practice and know about outside of college.

AVTs, like other adult learners, appear to be active learners. The linkage of classroom to outside activities enables this student group to apply their classroom experiences to their world and vice versa. This linkage should appeal to the AVTs' pragmatic natures and further advance their progress.

A use of technology, already mentioned to increase faculty member involvement, can also serve to link college programs to AVTs' out-of-class lives. Communication through fiber optics, telephone conference calls, and computer bulletin boards can bring the classroom learning to the students without requiring travel or in some cases, even leaving the home. When you couple these high tech learning experiences to students meeting in groups to share the technology resources, faculty involvement, student acquaintance involvement, and course activities are increased.

Implications of College Intrusion

The recommendations and suggestions stemming from the results of this study are grounded in a caution on the nature of the adult learner in vocational technical programs. As mentioned, these students are busy, pragmatic, and goal oriented. They will perhaps only tolerate so much interference from their colleges.

These students are relatively satisfied and report they would, given the choice, make the same decision to enroll in the college programs. They do not, for the most part, consume too many college resources. While they represent an ever increasing student population, they can be both ignored and misunderstood

3) There were differences in the level of satisfaction with the college environment between ALs and TLs, difference in the level of satisfaction with the college environment between AVTs and ACTs, and no difference in level of satisfaction with the college environment between AVTs and TVTs.

The findings of this study support Astin's theory of student involvement :

1) AVT student involvement consists of both psychological and physical energy invested in course activities, writing activities, science activities, and library activities. AVTs do not invest much psychological or physical energy on interaction with other students or faculty members. In addition, AVTs do not invest as much energy in building vocational skills as younger vocational technical students do.

2) AVT involvement follows the continuum described by Astin (1984) as different levels of involvement in different types of activities. This can be seen especially when AVT involvement is compared to other student groups.

3) AVT involvement is both quantitative and qualitative. While AVT levels of involvement are lower is some areas than levels of other student groups, AVTs report making gains and express satisfaction with the college environment. The gains reflect the quantitative aspect the AVT involvement and the satisfaction reflects the qualitative aspect of involvement (Astin, 1984).

4) College personnel can develop policies and practices that can directly impact AVT student involvement (Astin, 1984). There are areas where AVT involvement, gains, and satisfaction are lower than other student groups. These differences in measurement indicate that AVTs are more marginal, less involved students than other adult learners or traditional age learners. College personnel can address these areas of differences and produce services and policies that can lead to AVT increases in involvement, gains, and satisfaction.

Conclusions from the study are:

- AVTs' educational involvement largely centers on course and writing activities.
- AVTs experience moderate gains while in college.
- AVTs are only moderately satisfied with their college environment.
- AVTs differ somewhat from other adult learners in community colleges.
- AVTs differ substantially from traditional age learners in community college vocational technical programs.

Recommendations from the study are:

1) Community colleges should seek methods to increase AVT levels of involvement with faculty members and student acquaintances. Suggestions for methods to increase these involvement areas are provided.

2) To increase AVT areas and levels of gain, community colleges should tie the AVT out of class learning opportunities to course and program completion. Examples of how the use of technology can contribute to this are provided.

3) To increase both AVT involvement and gain levels, community college administrators should design policies that offer credit for on-the-job internships and life experiences. Other policy related recommendations are that colleges offer recognition for academic achievement for part-time students and for accomplishments beyond grade point average.

4) To maintain AVTs' high levels of satisfaction with the college environment, community college administrators and faculty members need to balance the desire to provide services for AVTs with a respect to not intrude on the AVTs' complex lives and pragmatic, goal oriented natures.

References

Ackerman, S. P. (1990). A comparison of a sub-population of Santa Monica college students to other community college students in the Southern California Area: An analysis of the results from the Community College Student Experiences Questionnaire. Santa Monica, CA: Santa Monica College. (ERIC Document Reproduction Service No. 315132)

Alfred, R. L., Peterson, R. O., & White, T. H. (1992). Making community colleges more effective: Leading through student success. Project Report. Ann Arbor, MI: Community College Consortium.

Arnold, J. C., Kuh, G. D., Vesper, N., & Schuh, J. S., (1991). The influence of student effort, college environments and selected student characteristics on undergraduate student learning and personal development at metropolitan institutions. ASHE Annual Meeting Paper. (ERIC Document Reproduction No. 339316).

Aslanian, C. (1986). Mainstreaming of adults on American campuses. The Community Services Catalyst, 16(3), 6-10.

Aslanian, C. B., & Brickell, H. M. (1988). How Americans in transition study for college credit. New York: College Entrance Examination Board.

Astin, A. W. (1977). Four critical years. Washington, DC: American Council on Education.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. Journal of College Student Personnel, 24(4), 297-308.

Astin, A. W. (1985). Involvement: The cornerstone of excellence. Change, July/August, 34-39.

Astin, A. W. (1992). The American freshman. Annual Report. Los Angeles, CA: University of California, Graduate School of Education.

Bagnall, R. G. (1989). Researching participation in adult education: A case of quantified distortion. International Journal of Lifelong Education, 8(3), 251-260.

Baird, L. L. (1988). The college environment revisited: A review of research and theory. In J. C. Smart (Ed), Higher education: Handbook of theory and research, Vol. 4. New York: Agathon.

Champagne, D. E., & Petitpas, A. (1988). Planning developmental interventions for adult students. NASPA Journal, 26(4), 265-270.

Cohen, A. M., & Brawer, F. B. (1986). The American community college. San Francisco: Jossey-Bass.

Darkenwald, G. G., & Merriam, S. B. (1982). Adult education: Foundations of practice. New York: Harper & Row

Davidson, B. S., Muse, C. T., & Matranga, M. (1989). How to meet the needs of the community college diverse adult student population. MPAEA Journal, Spring, 25-30.

Delworth, U., Hanson, G., & Associates. (1990). Student services. San Francisco: Jossey-Bass.

Douzenis, C., & Murrell, P. (1992). An analysis of student's experiences at selected community colleges in Tennessee: Findings from the Community College Student Experiences Questionnaire. Paper presented at The Association for Institutional Forum, Atlanta, GA.

Feldman, K. A., & Newcomb, T. M. (1969). The impact of college on students. San Francisco: Jossey-Bass.

Friedlander, J. (1990). The quality of students' educational experience at Santa Barbara City College. Santa Barbara, CA: Santa Barbara College.

Friedlander, J., & MacDougall, P. (1992). Achieving student success through student involvement. Community College Review, 20(1), 21-28.

Gordon, V. N. (1982). Reasons for entering college and academic and vocational preferences. Journal of College Student Personnel, 23(5), 371-377.

Graham, S. W. (1987). The needs and learning preferences of community college adults: Implications for program planning and marketing. Community College Review, 15(3), 41-47.

Graham, S. W. (1988). Adult learners in a community college environment: Examining changes and trends in learning patterns. Community/Junior College Quarterly, 12, 147-158.

Griffin, E. V., & Olsen, L. (1988). Innovative practices and developments in vocational sex equity. [Monograph 1(1)]. Richmond, VA: Virginia Department of Education, Department of Vocational Sex Equity.

Hale, C. D., & Wattenbarger, J. L. (1990). Adult undergraduate academic participation. Community/Junior College Quarterly of Research and Practices, 14, 199-211.

Herr, E. L., & Cramer, S. H. (1988). Career guidance and counseling through the life span. Glenview, IL: Scott, Foresman, and Co.

Johnson, W. B., & Packer, A. H. (1987). Workforce 2000. Indianapolis, IN: Hudson Institute.

Kasworm, C. E. (1980). Student services for the older undergraduate student. Journal of College Student Personnel, 21(2), 163-169.

Knight, W. E. (1992). Report 1: Background and composite results. Report of the results of the Community College Student Experiences Questionnaire.

Kent, OH: Kent State University Regional Campuses, Office of Academic Assessment & Evaluation Services. (ERIC Document Reproduction Service No. 346911).

Krager, L., Wrenn, R., & Hirt, J. (1990). Perspectives on age differences. In L. V. Moore (Ed.), Evolving theoretical perspectives on students (pp. 37-47). New Directions for Student Services, 51.

Kuh, G. D. (1984). A framework for understanding student affairs work. Journal of College Student Development, 25(1), 25-38.

Kuh, G. D., Schuh, J. H., Whitt, E. J., Andreas, R. E., Lyons, J. W., Strange, C. C., Krehbiel, L. E., & MacKay, K. A. (1991). Involving colleges. San Francisco: Jossey-Bass.

Kuh, G. D., & Sturgis, J. T. (1980). Looking at the university through different sets of lens: Adult learners and traditional age students' perceptions of the university environments. Journal of College Student Personnel, 21(6), 483-490.

Lehman, P. W. (1992). CCSEQ: Test manual and comparative data. Los Angeles: University of California, Center for the Study of Education.

Likens, J. M. (1989). Research refutes a myth: Commuter students do want to be involved. NASPA Journal, 29(1), 68-74.

Long, J. P. (1985). Vocational education in the community colleges. VocEd, 60(2), 47-50.

Migden, J., & Bradley, L. (1992). Nontraditional alumni survey of satisfaction with the associate's degree. Community/Junior College Quarterly, 16, 251-259.

Mitchell, G. N. (1984). The reverse transfer, lateral transfer, and first-time community college student: A comparative study. Sacramento, CA: Los Rios Communityu College District.

Moore, L. V. ,& Upcraft, M. L. (1990). Theory in student affairs: Evolving perspectives. In L. V. Moore (Ed.)., Evolving theoretical perspectives on students (pp. 3-23). New Directions for Student Services, 51.

Morstain, B. R., & Smart, J. C. (1977). A motivational typology of adult learners. Journal of Higher Education, 48(6), 665-679.

Nolte, W. (1992). Prosperity or poverty: Working adults and community colleges. Community College Review, 20(2), 7-19.

Pace, C. R. (1982). Achievement and the quality of student effort: Report prepared for the National Commission on Excellence in Education. Los Angeles: Higher Education Research Institute, University of California at Los Angeles. (ERIC Document Reproduction Service No. 227101).

Pace, C. R. (1984). Measuring the quality of college student experiences. Los Angeles: Higher Education Research Institute. (ERIC Document Reproduction Service No. 255099).

Pascarella, E. T. & Terenzini, P. T. (1991). How college affects students. San Francisco: Jossey-Bass.

Puryear, A. D. (1988). Understanding the needs of adult students. Community Services Catalyst, 18(4), 13-16.

Reece, B. L. (1985). Five initiatives for reaching adults. VocEd, 60(3), 30-32.

Renkiewicz, N. K., Hirsch, P. M., & Drummond, M. E. (1982). Transfers: It's a two-way street. Community and Junior College Journal, 53(3). 21, 54.

Rhatigan, J. J. (1986). Developing a campus profile of commuting students. NASPA Journal, 24(1), 4-10.

Richter, D. L., & Witten, C. H. (1984). Barriers to adult learning: Does anticipation match reality? Journal of College Student Personnel, 25(5), 465-467.

Rooth, S. R. (1979). The reverse transfer student at Northampton County Area Community College. (Research Report). Northampton, PA: Northampton Area Community College.

Ross, R. A. (1982). The reverse transfer phenomenon at Piedmont Virginia community college. (Research Report No. 3-82). Charlottesville, VA: Piedmont Virginia Community College.

Rountree, J., & Lambert, J. (1992). Participation in higher education among adult women. Community/Junior College Quarterly, 16, 85-94.

Schlossberg, N. K. (1984). Counseling adults in transition. New York: Springer.

Schlossberg, N. K., Lynch, A. Q., & Chickering, A. W. (1989). Improving higher education environments for adults. San Francisco: Jossey-Bass.

Sewall, T. J. (1984). A study of adult undergraduates: What causes them to seek a degree? Journal of College Student Personnel, 25(4), 309-314.

Slark, J. (1982). Reverse transfer student study. (Research Report). Santa Ana, CA: Santa Ana College.

Terrell, P. S. (1990). Adapting institutions of higher education to serve adult students. NASPA Journal, 27(3), 241-247.

Terry, D. R. (1985). Highlights of the Carl Perkins Act. VocEd, 60(4), 31-34.

Two Year College Development Center. (1988). Summary profile: Selected programs for adults in need of training/retraining in postsecondary occupational education. Published research report. Albany, New York: State University of New York, Author.

Upcraft, M. L., & Moore, L. V. (1990). Evolving theoretical perspectives of student development. In M. J. Barr, M. L. Upcraft, & Assoc. New futures for student affairs (pp. 41-68). San Francisco: Jossey-Bass.

VonDestinon, M. (1988). Chicano student persistence: The effects of integration and involvement. (ERIC Document Reproduction No. 301129).

Wilmes, M. B., & Quade, S. L. (1987). Perspectives on programming for commuters: Examples of good practice. NASPA Journal, 24(1), 25-34.

APPENDIX A

CCSEQ Additional questions

Please use the answer area labeled "ADDITIONAL QUESTIONS" on page 7 of this questionnaire.

1. I am enrolled at DMACC for the following reason:

CHOOSE ONLY ONE BEST ANSWER

A. TO PREPARE FOR CAREER CHANGE

B. TO UPGRADE CURRENT JOB SKILLS

C. TO PREPARE FOR TRANSFER TO FOUR-YEAR SCHOOL

D. TO PREPARE FOR JOB ENTRY

E. FOR PERSONAL INTEREST

2. I AM ENROLLED IN THE FOLLOWING PROGRAM AREA:

CHOOSE ONE BEST ANSWER

A. COLLEGE TRANSFER OR GENERAL EDUCATION

B. VOCATIONAL-TECHNICAL

3. I am:

A. 17-22 YEARS OLD

B. 23 YEARS OLD OR OLDER

November, 1993

Dear DMACC Student:

I am a doctoral student at Drake University and I am using DMACC students for my research study. I am using the attached questionnaire, the Community College Student Experiences Questionnaire, to help me gather information for my study.

The CCSEQ is designed to provide DMACC personnel and me with information about your experiences and satisfaction as a DMACC student. The CCSEQ will give you a chance to think about your college experiences, in general, and decide how much progress you are making at DMACC. It takes about 20 minutes to complete the questionnaire and we do not ask for any information that can identify who you are. The questionnaire is strictly confidential.

You do not have to complete the questionnaire. If you decide not to, simply return it to the person handing out the questionnaire in class. If you start the questionnaire and then decide you do not want to finish it, simply return it to the person handing out the questionnaire.

The information you give on the questionnaire will help DMACC provide better services and classroom opportunities for you. You help yourself and other DMACC students by taking part in this study.

Thank you for your time and cooperation.

Sincerely,

Julie A. Mayrose 277-9406

Directions for completing CCSEQ

These directions will be read in each of the classes of students selected to complete the CCSEQ.

We are handing out this questionnaire in various classes during the week of November 27. The questionnaire is used to assist a doctoral student at Drake University in completing her research. If you filled out this questionnaire in another class, please do **not** fill out another one in this class.

There are no right or wrong answers to these questions. You will not be graded, and completing this questionnaire is voluntary. If you decide, after starting the questionnaire that you do not want to finish it, please return it to the person who handed out the questionnaire.

Please use a #2 pencil, we have them to distribute if you need one.

Please make sure all marks are within the answer circle and the circles are completely darkened in. Try not to make any stray marks on the questionnaire. If you need to erase, be sure to erase as cleanly as you can.

Only give one answer for each question. Choose the best answer available. Please do not skip any questions.

Do **not** write your name or social security number anywhere on the questionnaire.

If you have any questions now or as you complete the questionnaire, please feel free to ask the person handing out the questionnaire.

Please read the letter attached to your questionnaire. After reading the letter, if you agree to take part in this study, please complete the questionnaire and return it to the person handing out the questionnaire. The Community College Student Experience Questionnaire should take you about 20 minutes to complete.

Thank you for your time and cooperation.

Night Sections			
COOP 220	E1	Monday	6 p.m.-8 p.m.
ACCT 101	E1	Mon/Wed	6 p.m. -8 p.m.
BIOL 127	E1	Mon/Wed	
COMS 181	E1	Monday	6 p.m.
	E3	Wed	6 p.m.
	E4	Thur	6 p.m.
	E5	Tuesday	6 p.m.
ENG 117	E1	Monday	6:30
	E3	Wed.	6:30
	E4	Thurs.	6:30

Course	**# Selected**	**Sections Drawn**
COOP 220	1	**220-J,** MW, 12:50-2-15
ACCT 101	2	**101-K**, MTWF, 11:15
		101-B, 10:10, MTWF
BIOL 127	1	**127-C**, 12:20 M, 11:15 W,
		12:20 F
BIOL 132	0	
COMS 181	2	**181-M,** M T, 1:25
		181-A, MTWF, 8 am
ENGL 117	6	**L, Z, Q, I, AF, AE,**
MATH 410	2	**410-7**, MWF, 2:30
		410-2, MWF, 8 am

	Monday November 29	Tuesday November 30	Wednesday December 1	Thursday December 2	Friday December 3
Day Classes	No day classes scheduled	9:40 am ENGL 117-F 2:30 pm BIOL 127-F	8:00 am MTH 410-1 ENGL 117-AE 11:15 am ENGL 117-H 12:20 ACCT 101-C COOP 220-G 2:30 pm ENGL 117-R	NONE	11:15 am COMS 181-G
Night Classes	6:00 pm COOP 220-E1 COMS 181-E1 7:00 pm ENGL 117-E1 BIOL 132-E1	6:00 pm COMS 181-E5	6:00 pm ACCT 101-E1 BIOL 127-E1 7:00 pm COMS 181-E3 ENGL 117-E3	6:00 pm ENGL 117-E4 COMS 181-E4	6:00 pm NONE

APPENDIX B

Raw Data and Statistical Tables

The following tables contain the statistical data from ANOVA and T-tests for the Student Involvement and Environmental Satisfaction scale scores.

Table 1: ALs and TLs Analysis of Variance Report on QECourse

Source	SS	v	MS	F
Age Group (A)	5.361487	1	5.361487	0.24
Program (B)	68.51221	1	68.51221	3.06
Sex (C)	27.6569	1	27.6569	1.24
AB	2.100136	1	2.100136	0.09
AC	29.2057	1	29.2057	1.31
BC	7.767601	1	7.767601	0.35
ABC	47.92326	1	47.92326	2.14
Error	7581.772	339	22.36511	
Total	7822.075	346		

Table 2: ALs and TLs Analysis of Variance Report on QELibrary

Source	SS	v	MS	F
Age Group (A)	75.90349	1	75.90349	5.33*
Program (B)	113.0934	1	113.0934	7.94*
Sex (C)	2.042	1	2.042	0.00
AB	2.362396	1	2.362396	0.17
AC	71.86519	1	71.86519	5.05*
BC	60.23185	1	60.23185	4.23*
ABC	15.16338	1	15.16338	1.06
Error	4969.835	349	14.24022	
Total	5383.132	356		

*p>.05

Table 3: ALs and TLs Analysis of Variance Report on QEFaculty

Source	SS	v	MS	F
Age Group (A)	72.95244	1	72.95244	5.51*
Program (B)	19.56471	1	19.56471	1.48
Sex (C)	8.835567	1	8.835567	0.67
AB	82.72546	1	82.72546	6.24*
AC	41.92963	1	41.92963	3.17
BC	27.7989	1	27.7989	2.10
ABC	.2424471	1	.2424471	0.02
Error	4596.648	347	13.24682	
Total	4844.383	354		

*p>.05

Table 4: ALs and TLs Analysis of Variance Report on QEStudent Acquaintances

Source	SS	v	MS	F
Age Group (A)	47.578	1	47.578	4.14*
Program (B)	28.88105	1	28.88105	2.51
Sex (C)	70.81696	1	70.81696	6.15*
AB	17.21639	1	17.21639	1.50
AC	122.2321	1	122.2321	10.62*
BC	38.95119	1	38.95119	3.39
ABC	25.55543	1	25.55543	2.22
Error	4027.15	350	11.50614	
Total	4372.38	357		

*p>.05

Table 5: ALs and TLs Analysis of Variance Report on QEWrite

Source	SS	v	MS	F
Age Group (A)	171.5948	1	171.5948	5.13*
Program (B)	234.5111	1	234.5111	7.01*
Sex (C)	222.0066	1	222.0066	6.63*
AB	4.925265	1	4.925265	0.15
AC	39.9064	1	39.9064	1.19
BC	65.97874	1	65.87874	1.97
ABC	2.969606	1	2.969606	0.09
Error	11749.41	351	33.47409	
Total	12644.42	358		

*p>.05

Table 6: ALs and TLs Analysis of Variance Report on QEScience

Source	SS	v	MS	F
Age Group (A)	2.751704	1	2.751704	0.10
Program (B)	1.496284	1	1.496284	0.05
Sex (C)	4.106149	1	4.106149	0.14
AB	192.6445	1	192.6445	6.79*
AC	175.2182	1	175.2182	6.17*
BC	43.35863	1	43.35863	1.53
ABC	15.26315	1	15.26315	0.54
Error	9506.27	335	28.37692	
Total	9889.218	342		

*p>.05

Table 7: ALs and TLs Analysis of Variance Report on QEVocation

Source	SS	v	MS	F
Age Group (A)	94.37733	1	94.37733	2.74
Program (B)	872.9668	1	872.9668	25.37*
Sex (C)	52.16477	1	52.16477	1.52
AB	37.61955	1	37.61955	1.09
AC	21.37607	1	21.37607	0.62
BC	8.457397	1	8.457397	0.25
ABC	102.4314	1	102.4314	2.98
Error	6745.36	196	34.4151	
Total	8197.938	203		

*p>.05

Table 8: AVTs and ACTs Analysis of Variance Report on QECourse

Source	SS	df	MS	F
AVTs x ACTs	49.569	1	49.569	1.905
Error	3928.876	151	26.019	
Total	3978.444	152		

Table 9: AVTs and ACTs Analysis of Variance Report on QELibrary

Source	SS	df	MS	F
AVTs x ACTs	2.501	1	2.501	.156
Error	2419.264	151	16.022	
Total	2421.765	152		

Table 10: AVTs and ACTs Analysis of Variance Report on QEFaculty

Source	SS	df	MS	F
AVTs x ACTs	5.416	1	5.416	.515
Error	1610.455	153	10.526	
Total	1615.871	154		

Table 11: AVTs and ACTs Analysis of Variance Report on QEStudent Acquaintances

Source	SS	df	MS	F
AVTs x ACTs	1.094	1	1.094	.104
Error	1615.13	154	10.488	
Total	1616.224	155		

Table 12: AVTs and ACTs Analysis of Variance Report on QEWrite

Source	SS	df	MS	F
AVTs x ACTs	13.833	1	13.833	.389
Error	5442.515	153	35.572	
Total	5456.348	154		

Table 13: AVTs and ACTs Analysis of Variance Report on QEScience

Source	SS	df	MS	F
AVTs x ACTs	28.473	1	28.473	.928
Error	4510.48	147	30.684	
Total	4538.953	148		

Table 14: AVTs and ACTs Analysis of Variance Report on QEVocation

Source	SS	df	MS	F
AVTs x ACTs	8.318	1	8.318	.231
Error	3597.26	100	35.973	
Total	3605.578	101		

Table 15: AVTs and TVTs T-test for QECourse

Age Group	n	Mean Score	Std error of mean	T
TVTs	67	23.98507	.4865874	0.7235
AVTs	84	23.73809	.4865132	0.7201

Table 16: AVTs and TVTs T-test for QELibrary

Age Group	n	Mean Score	Std error of mean	T
TVTs	69	10.23789	.4254976	0.1434
AVTs	83	9.250862	.455315	0.1375

Table 17: AVTs and TVTs T-test for QEFaculty

Age Group	n	Mean Score	Std error of mean	T
TVTs	69	15.67164	.4920848	0.0031*
AVTs	85	13.84706	.3751772	0.0038

*p>..05

Table 18: AVTs and TVTs T-test for QEStudent Acquaintances

Age Group	n	Mean Score	Std error of mean	T
TVTs	68	10.89706	.4025488	0.0032*
AVTs	85	9.352942	.3303957	0.0036

*p>.05

Table 19: AVTs and TVTs T-test for QEWrite

Age Group	n	Mean Score	Std error of mean	T
TVTs	68	20.66176	.7235565	0.2345
AVTs	84	19.57143	.5766756	0.2407

Table 20: AVTs and TVTs T-test for QEScience

Age Group	n	Mean Score	Std error of mean	T
TVTs	67	14.1194	.7325607	0.2306
AVTs	81	12.97531	.6163852	0.2341

Table 21: AVTs and TVTs T-test for QEVocation

Age Group	n	Mean Score	Std error of mean	T
TVTs	61	18.60656	.823918	0.0032*
AVTs	80	15.5125	.6458225	0.0037

*p>.05

Table 22: ALs and TLs Analysis of Variance Report on Environmental Satisfaction Scale Scores

Source	SS	v	MS	F
Age Group (A)	49.1122	1	49.1122	6.95*
Program (B)	17.33698	1	17.33698	2.45
Sex (C)	.3663345	1	.3663345	0.05
AB	31.92062	1	31.92062	4.52*
AC	1.629694	1	1.629694	0.23
BC	31.66475	1	31.66475	4.48*
ABC	13.13463	1	13.13463	1.86
Error	2395.519	339	7.066429	
Total	2586.911	346		

*p>.05

Table 23: AVTs and ACTs Analysis of Variance Report on Environmental Satisfaction Scale Scores

Source	SS	df	MS	F
AVTs x ACTs	28.973	1	28.973	4.42*
Error	983.343	150	6.556	
Total	1012.316	151		

*p>.05

Table 24: AVTs and TVTs T-test: Environmental Satisfaction Scale

Age Group	n	Mean Score	Standard error	t
AVTs	84	13.92857	.2952025	0.9662
TVTs	67	13.91045	.303553	0.9659